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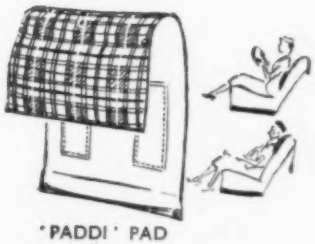
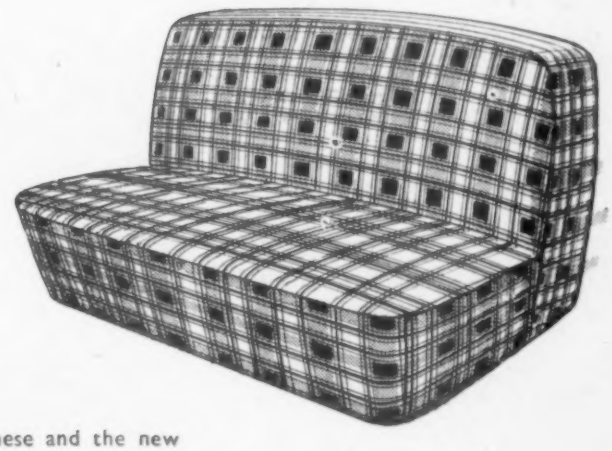
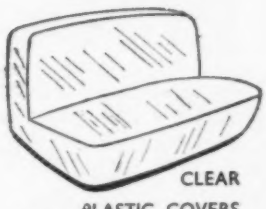


'PADDI' PAD

SEAT PAD





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First Floor, Motor Show

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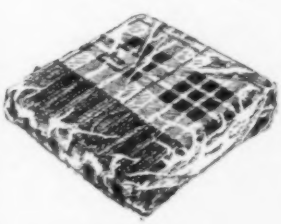

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for cars of 900 c.c. and upward.

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A smart 4-berth touring model which tows really well behind a small car.

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CO. ANTRIM: William Scott, 2 Wesley Court, Belfast, Co. Antrim, Northern Ireland.

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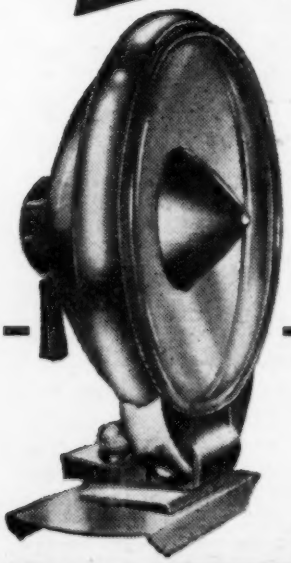

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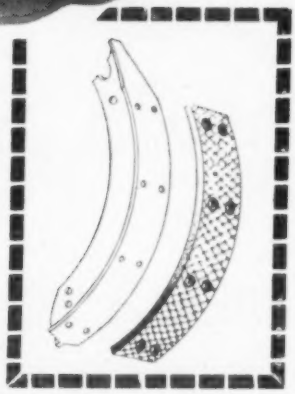

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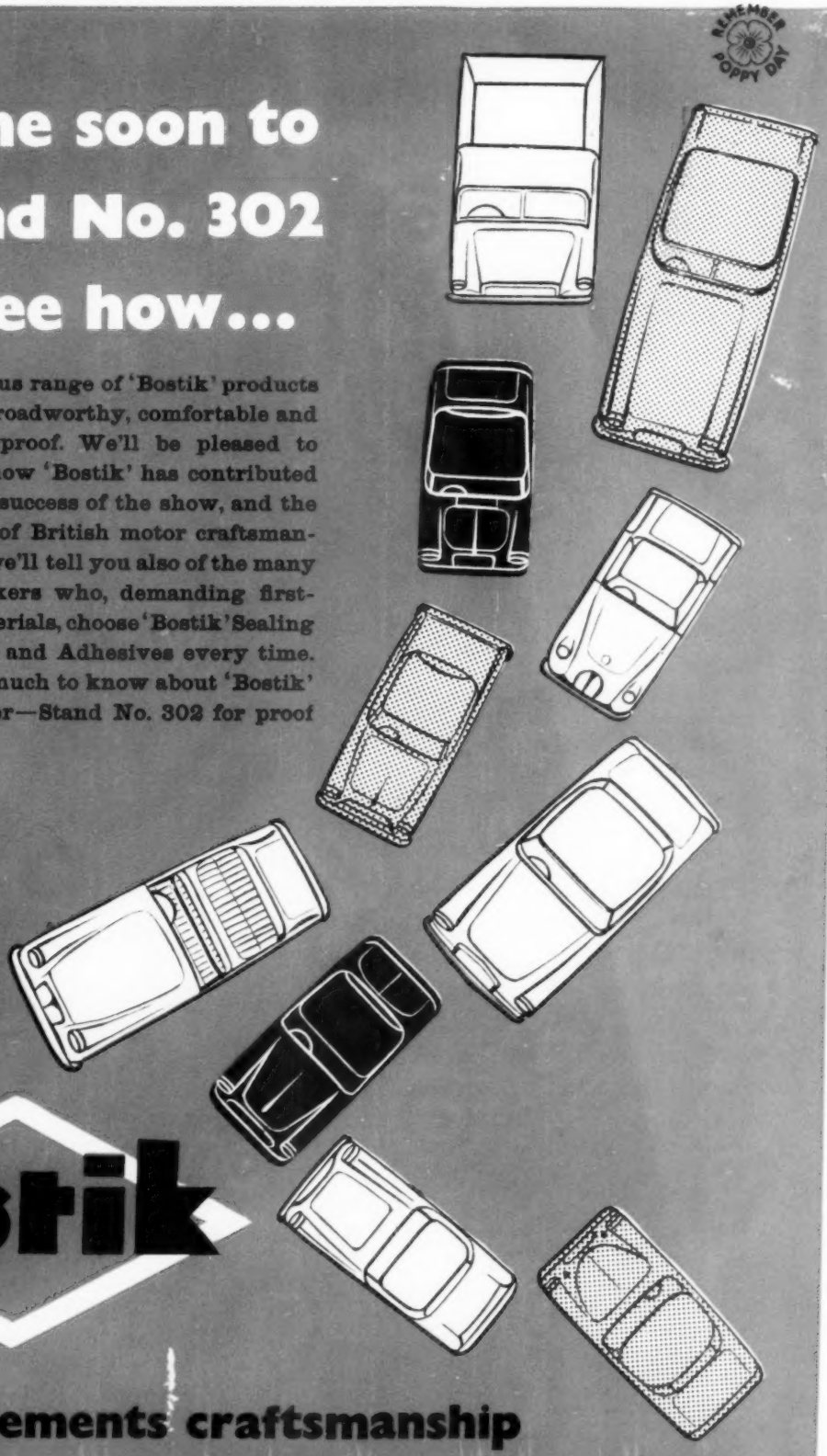

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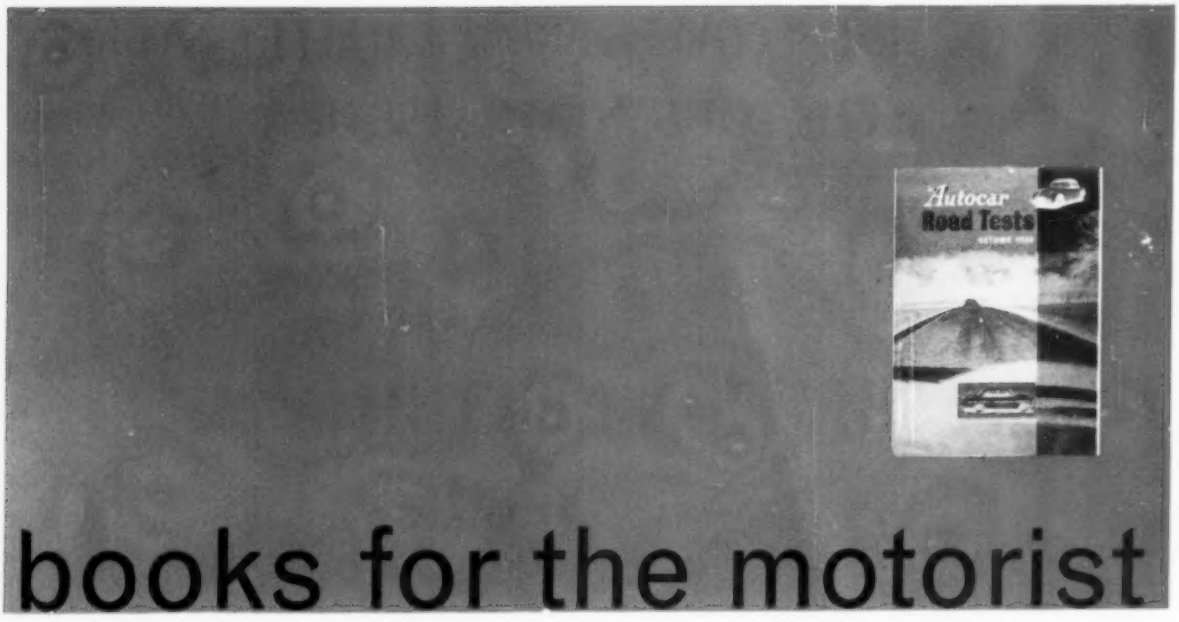

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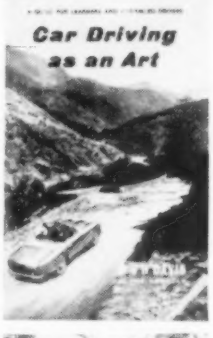

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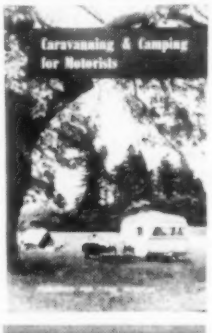

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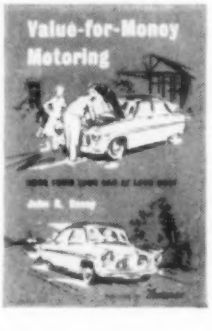

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- Top speed, an unstrained 70 m.p.h. Cruising speed, 55 m.p.h.
- Acceleration: 0-37 m.p.h. in 11 seconds: 37-56 m.p.h. in 20 seconds.
- Petrol consumption: 64 m.p.g. at 30 m.p.h.: 52 m.p.g. at 45 m.p.h.: 47 m.p.g. at 55 m.p.h.
- 4-wheel independent suspension gives a smooth ride, rock-steady cornering, and restful long-distance touring.
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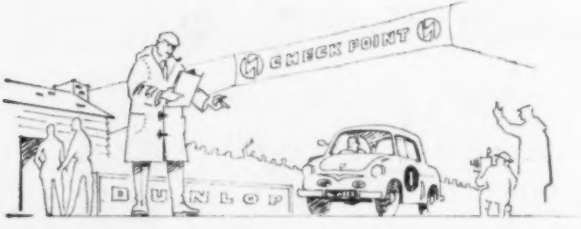

Now compare this sensational new 'Prinz' with any other light car you have in mind!
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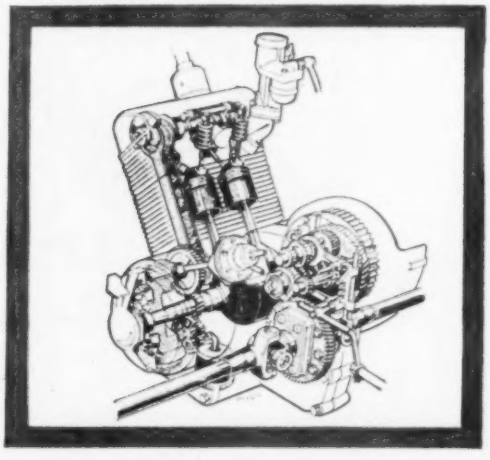

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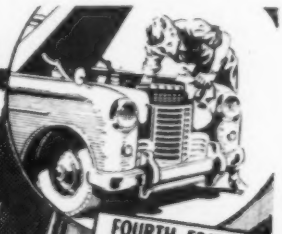

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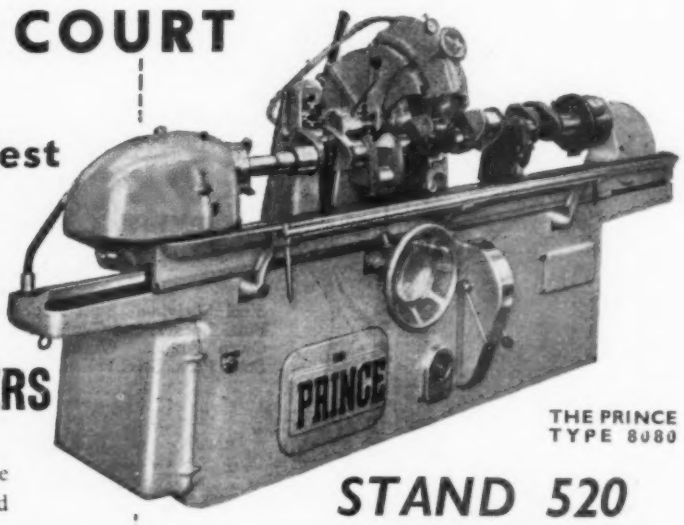

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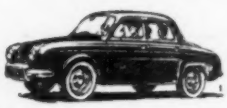
RENAULT  *AGENTS*

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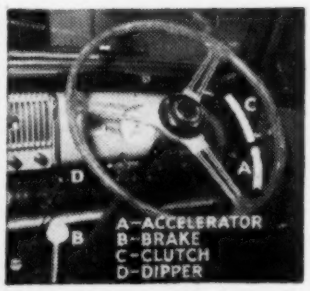

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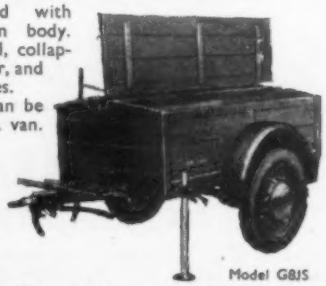

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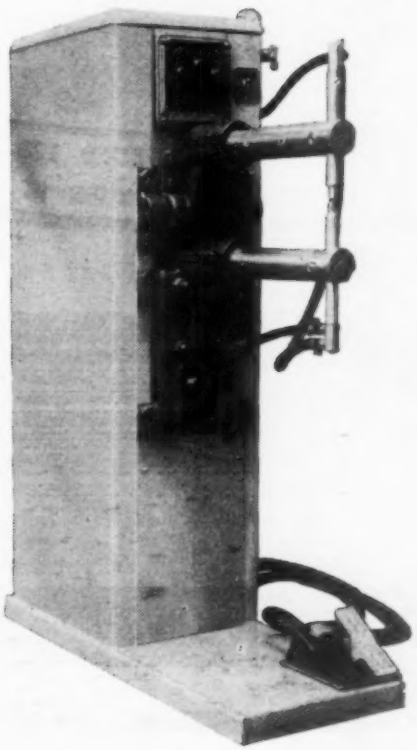

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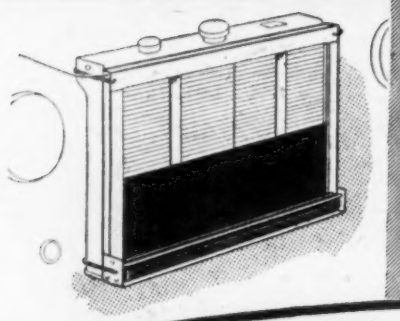

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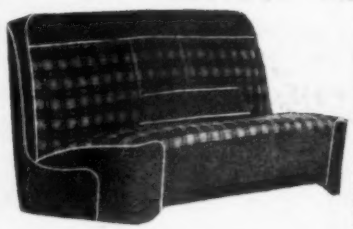

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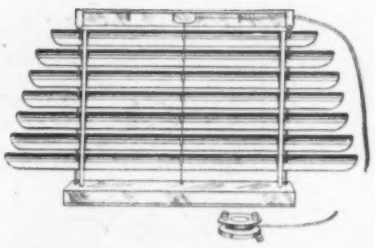

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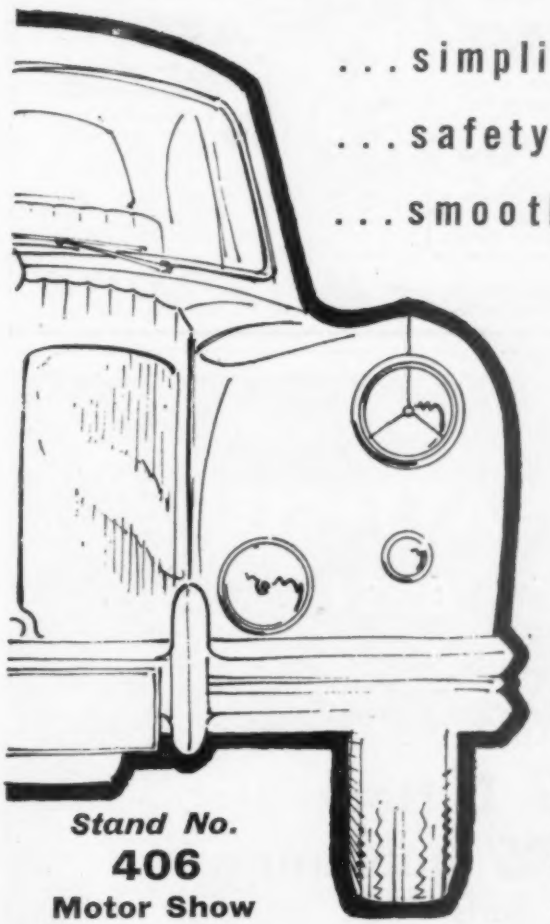

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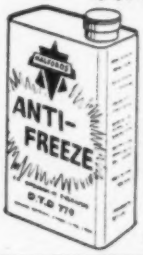

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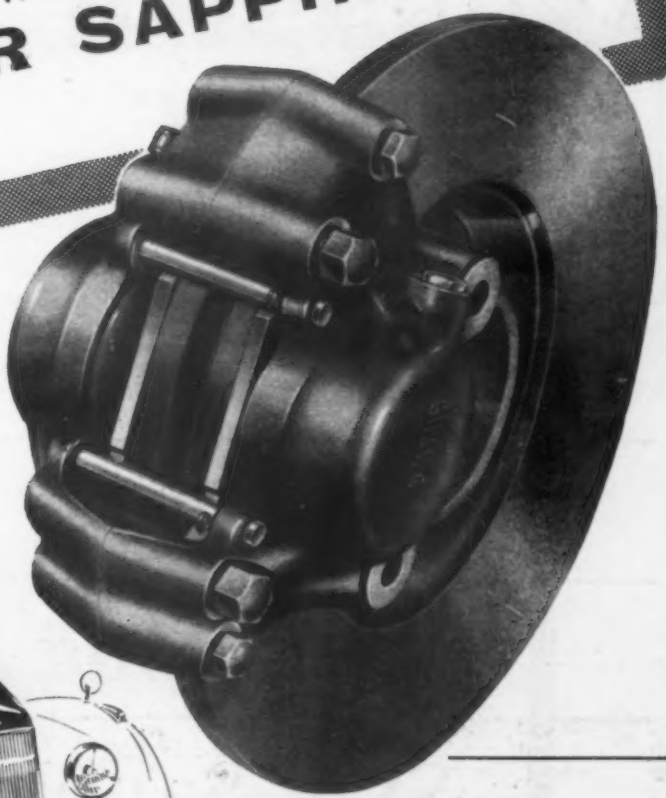

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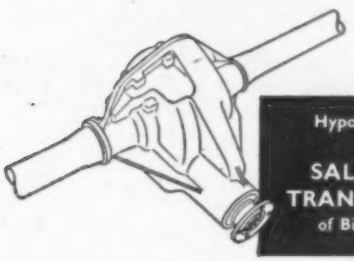

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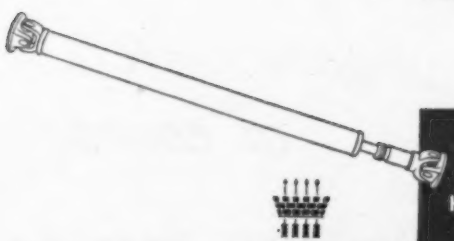

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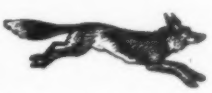

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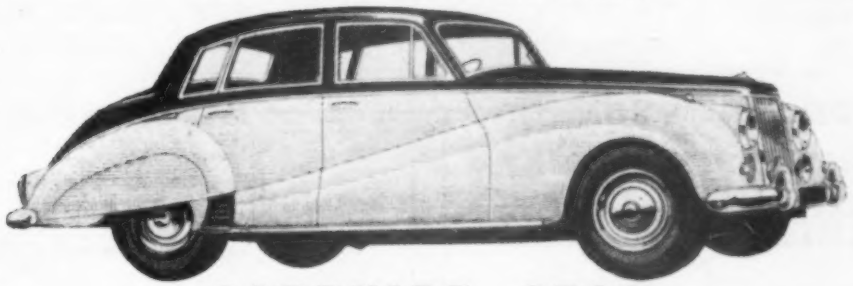

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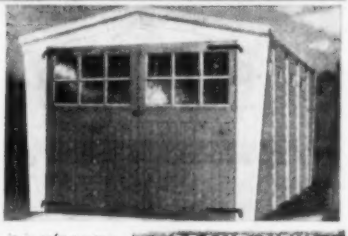

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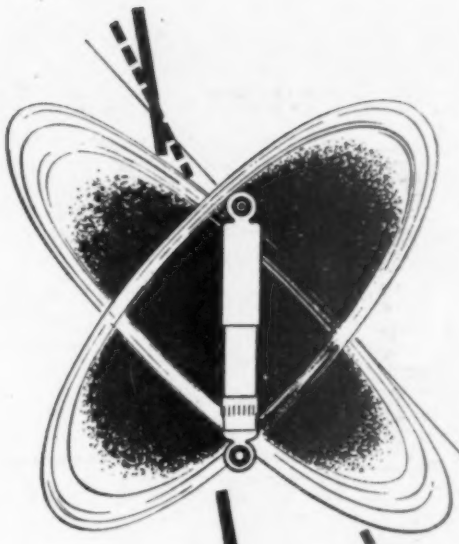

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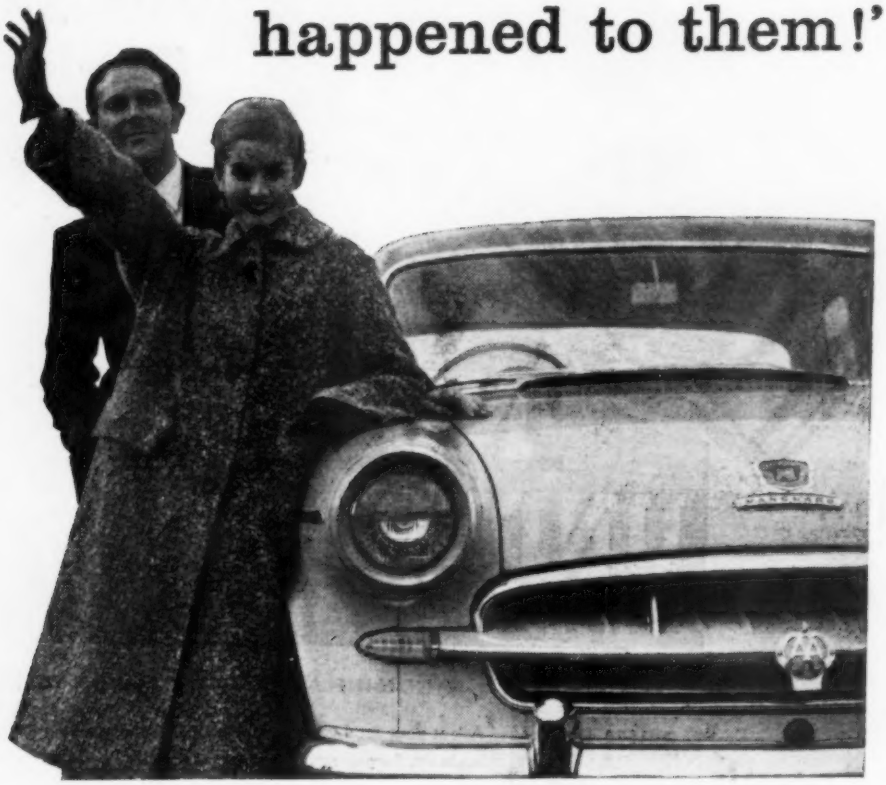

'We were as surprised as they were when we found ourselves waiting for them at the rendezvous. Yet our Vanguard never appeared to be hurrying, it seemed to take everything in its stride so easily. Sitting relaxed in really wonderful comfort with lovely wide all-round vision I forgot all about speed. But Fred said later that the Vanguard's 2 litre engine packs real power. When Arthur and Mavis arrived *after* us in their car—well, you should have seen their faces! I'm afraid we've become very smug about our Standard Vanguard III now—who wouldn't be when it's so economical into the bargain. And, by the way, you have the choice of gear change on the steering column or by a floor-mounted lever, while Borg Warner Automatic Transmission is available as an optional extra.'

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The Autocar

VOLUME 109 NUMBER 3278

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Concentration of Interest

SHOWMANSHIP plays an increasingly important part in the introduction of new British cars. National newspapers, more concerned with public appeal and impact than with technicalities, have encouraged this, while in many overseas markets new models are now expected to make a spectacular individual bow.

One outcome has been that the London Motor Show is no longer regarded as *the* accepted time to announce new British cars *en masse*. The needs of the world-wide markets which have been built up, and the intricate organization associated with modern production methods, have also exerted equally powerful influences upon the timing of new models.

It is thus fortunate from the point of view of the Society of Motor Manufacturers and Traders—who, of course, organize the London Motor Show at Earls Court—that its members and foreign exhibitors have, even so, found it expedient to announce a number of new models and variants at this time of the year. There will indeed be a great deal to be seen for the first time by visitors to the Show.

The past year has been a strenuous and competitive one for the motor industries of the world. For Great Britain it has been so far a particularly successful year—total production in the first eight months reached 680,749 cars, compared with 509,845 for the same period in 1957. Export figures, too, show a marked increase; 336,078 as against 278,427. It is a fact, however, that the August export figure of 35,070 is below average, and, even allowing for holiday influences, this indicates the need for a continued all-out effort.

This special guide to Earls Court opens with a review of new models and novel features from many countries which will bring the reader up to date, in anticipation of his or her visit to the Show to examine the latest products of the world "in the solid."

Guide to Earls Court	526	Suspension Developments	552
Cars of the Year	529	Accessories at the Show	557
Armstrong Siddeley Star Sapphire	539	Buyers' Guide: Data Tables	559
Body Production	542	News and Views	570
Road Test: Fiat Abarth Zagato 750	546	New Frisky Sprint	572
Correspondence	550	Eye-of-Show Releases	574
		Detroit Notebook	578
		The Sport	579

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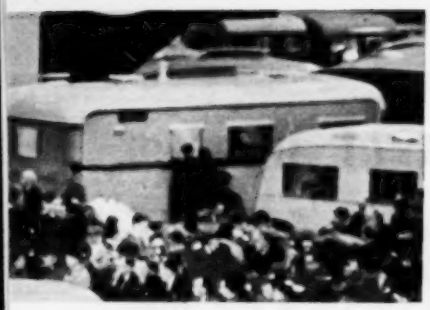
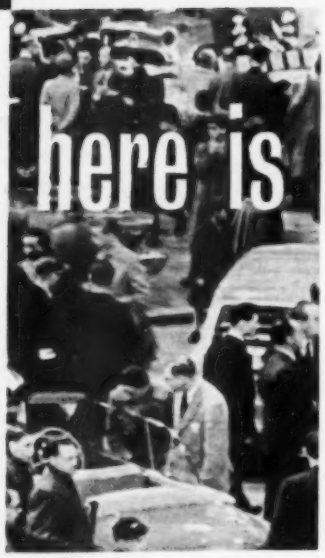


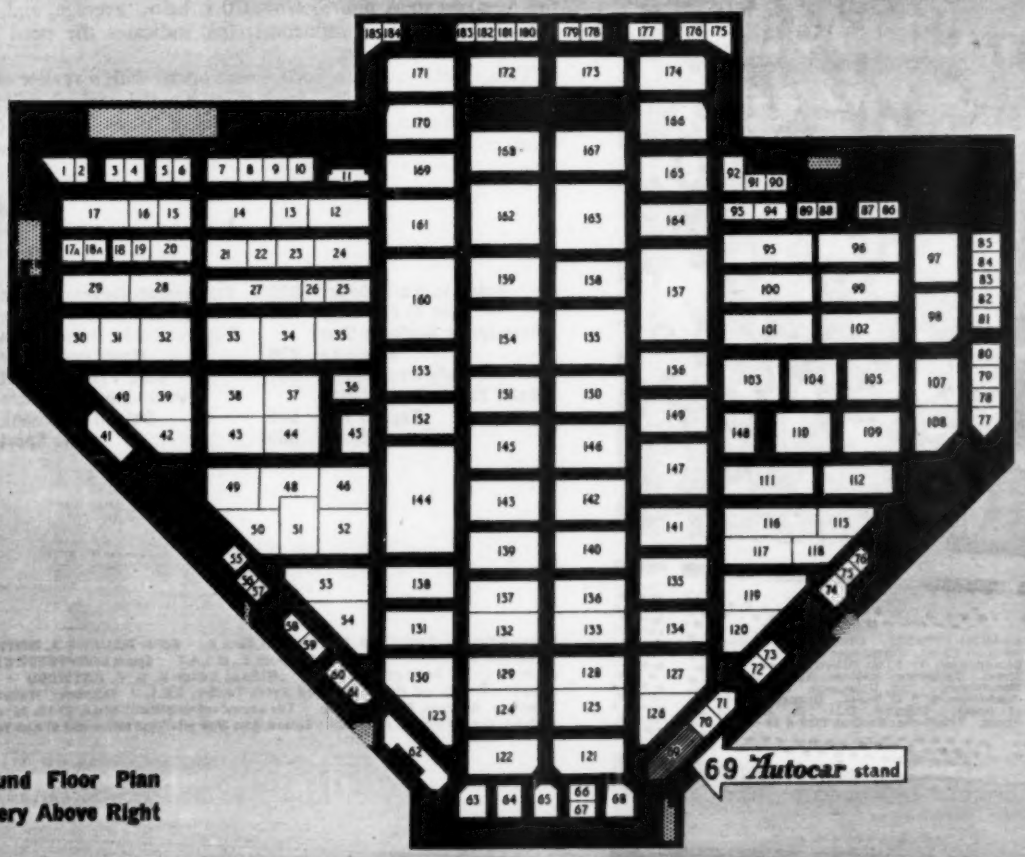
EARLS COURT—here is



CAR STANDS

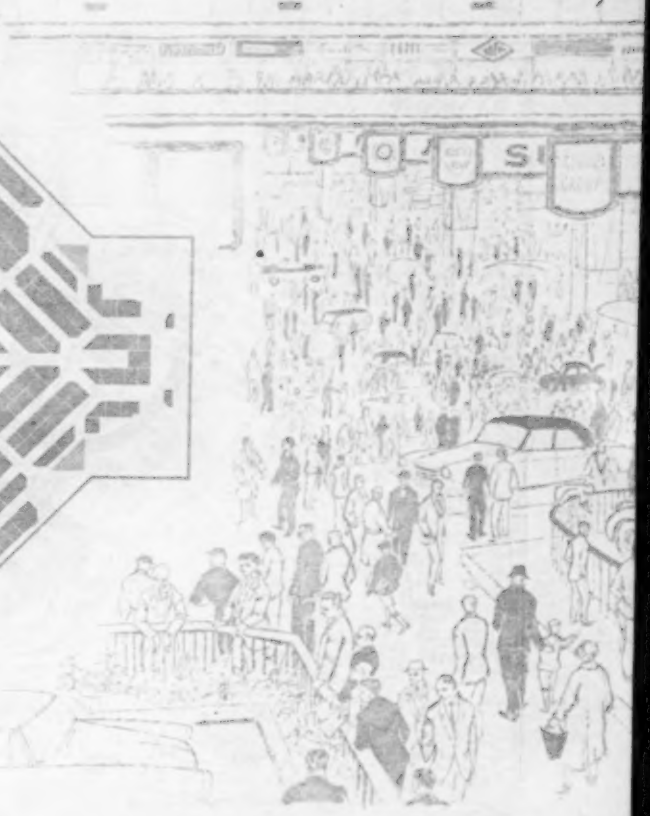
A.C.	165
Alfa Romeo	134
Alvis	149
Armstrong Siddeley	158
Aston Martin	164
Austin	157
Austin-Healey	122
Bentley	167
Berkeley	172
BMW	128
Borgward	127
Bristol	151
Buick	138
Cadillac	138
Chrysler	139
Citroen	150
D.A.F.	112
Daimler	142
D.K.W.	128
Dodge	140
Edsel	131
Facel-Vega	126
Ferrari	118
Fiat	141
Ford	144

INTENDING VISITORS to Earls Court will find the answers to their questions about arrangements and travel here, and on page 558. Recommended routes to Earls Court are given here, with overleaf a detailed street map of the area, showing the police arrangements for traffic control. A through-route plan of London, based on information provided by the Automobile Association, is on page 558.



Ground Floor Plan
Gallery Above Right

your Guide ...



Ford Taunus 131
Frazer-Nash 128
Frisky 117
Goggomobil 171
Hillman 162
Humber 146
Isetta 174
Jaguar 155
Jensen 169
Lancia 170
Lincoln 131
Lotus 123
Mercedes-Benz 121
Mercury 131
M.G. 154
Morgan 129
Morris 160
Motokov 116
N.S.U. 173
Packard 156
Panhard 148
Pearless 112
Peugeot 152
Plymouth 139
Pontiac 133
Porsche 130
Renault 143
Riley 153
Rolls-Royce 160
Rover 161
Simca Aronde 124
Simca Vedette 125
Singer 166
Standard 147
Studebaker 156
Sunbeam 159
Triumph 135
Unicar 120
Vauxhall 163
Volkswagen 119
Volvo 115
Wolseley... 145

COACHWORK STANDS

Abbott 94
Briggs 95
British Light Steel 98
Carbodies 100
Fisher and Ludlow 102
Harold Radford 107
Hooper 103
James Young 104
Martin Walter 109
Mulliner (H. J.) 99
Mulliners... 110
Park Ward 97
Pressed Steel 111
Stuart 42
Thrupp and Maberly 101
Vanden Plas 105

. . . TO EARLS COURT

By Car

AS EVERYONE who has ever been to the Show knows, the parking facilities at Earls Court are hopelessly inadequate, and long before the Show opens each day the official car parks are full. However, during the Show period the police will permit parking on one side of the street in many of the side roads in the area. These streets are marked by shading in the map overleaf.

Nevertheless, kerbside parking within convenient walking distance of the Exhibition Hall may also be tricky, and there are two good alternatives. One is to park in the fringe area of the map overleaf and take a taxi for the rest of the way; the other is to park near a station and proceed by Underground Railway for the final lap. The best stations for this method are:* West Brompton *(District line);* Baron's Court *(Piccadilly line);* Gloucester Road *(District line);* or South Kensington *(District line).

By Underground Railway

The best station for the Motor Show is **Earls Court**, which is served by District and Piccadilly lines. At the arrival platforms at Earls Court station there are signs showing the route along a subway to the Exhibition Hall, which leads straight into the building.

The routes below indicate how to reach Earls Court from other major stations.

Baker Street: Metropolitan line to **Edgware Road**, change to District line for Earls Court.

Charing Cross: District line to Earls Court.

Euston: Northern line to **Charing Cross**, change to District line for Earls Court.

King's Cross and **St. Pancras:** Piccadilly line direct to Earls Court.

Liverpool Street: Inner Circle line to **Sloane Square**, change to District line for Earls Court.

London Bridge: Northern line to **Bank**, change to District line for Earls Court.

Marylebone: Bakerloo line (or walk) to **Baker Street**, change to Metropolitan line for **Edgware Road**, change to District line for Earls Court.

Paddington: District line direct.

Victoria: District line direct.

Waterloo: Bakerloo or Northern line to **Charing Cross**, change to District line for Earls Court.

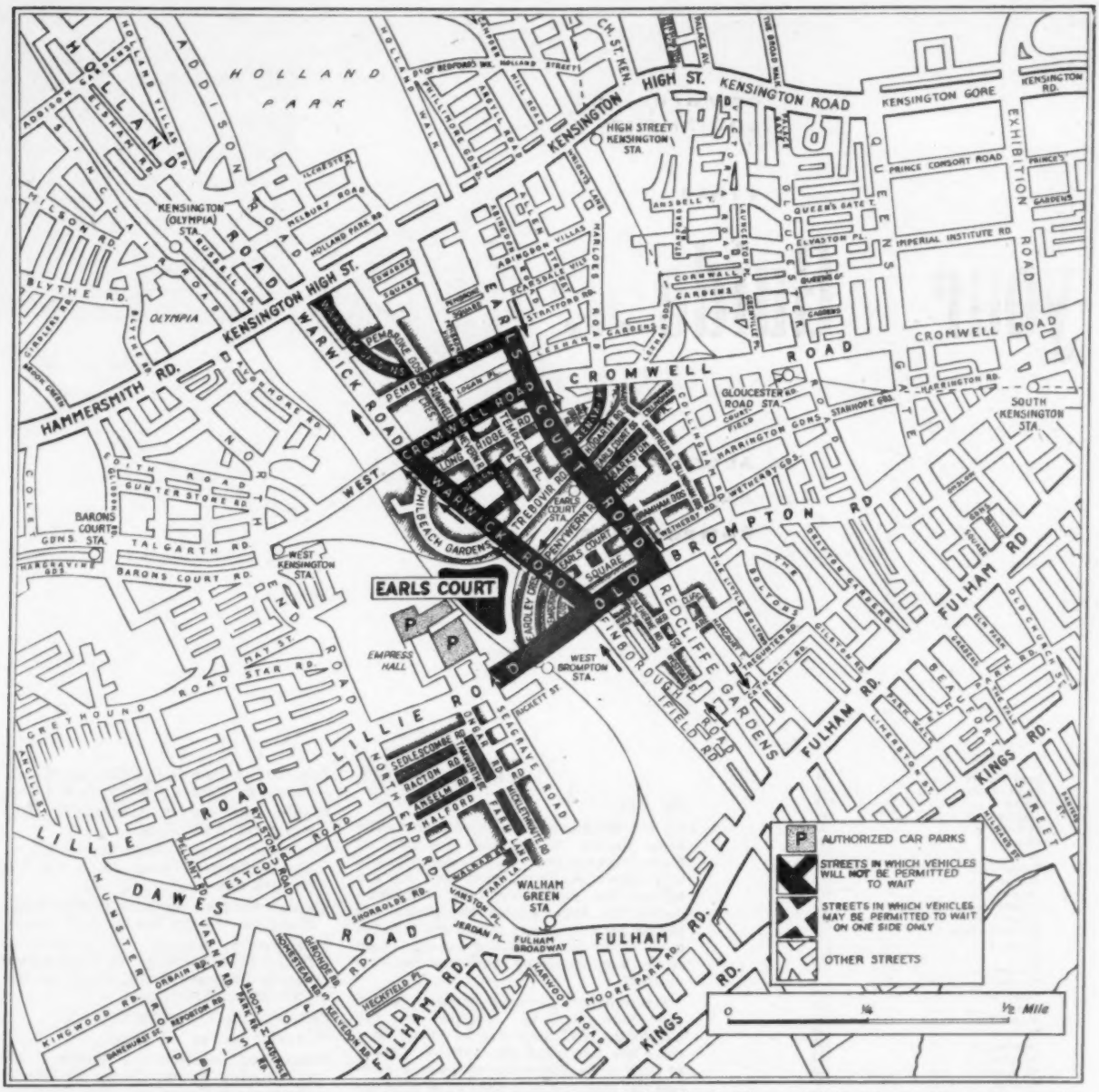
By Omnibus

Earls Court is served by any of the following services: **No. 30**, Hackney Wick, Baker Street, Marble Arch, Hyde Park Corner, South Kensington, Earls Court; **No. 31**, Camden Town, Kilburn, Westbourne Grove, Kensington, Earls Court; **No. 74**, Camden Town, Baker Street, Marble Arch, Hyde Park Corner, South Kensington, Earls Court.

. . . EATING AND DRINKING

Peter Merchant, Ltd., are handling the catering arrangements again at Earls Court this year. The restaurants and canteens

Stands 12-27 form the motor boat section, and stands 28-54 are caravans and light trailers. Stands 1-185 are on the ground floor.



PARKING ARRANGEMENTS *indicated in the map above are the temporary changes in force for the Show period. Parking is subject to the normal restrictions in unshaded streets*

Earls Court Guide . . .

will be open as shown in the list below. The only change from last year's arrangements is that in response to requests for cheap snacks to be available at the Show, the Brasserie Restaurant has been renamed the Popular Restaurant, and is to serve meals of this sort all day.

Popular Restaurant—lower ground floor entrance from ground floor near Philbeach entrance. Two fully licensed bars and a milk bar will provide hot and cold meals, light refreshments, beverages and alcoholic drinks at "popular" prices. Help yourself service. *10 a.m. to 9 p.m.*

Restaurant Française—first Mezzanine floor, just to the right of the Warwick Road entrance. *Lunch at 12 noon and dinner at 6 p.m. (à la carte).*

HOURS AND CHARGES

The Show will be open daily, except Sunday, 26 October, from 10 a.m. to 9 p.m., Wednesday, 22 October to Saturday, 1 November

On all but two days the charges will be 5s before 5 p.m., and 2s 6d after 5 p.m. The exceptions are the opening day, 22 October, and Tuesday, 28 October, when the respective charges before and after 5 p.m. will be £1 and 10s.

The Show will be opened at 12 noon on 22 October by the Home Secretary, Mr. R. A. Butler.

South Restaurant—first Mezzanine floor, left of Warwick Road entrance. *Lunch 11.30 a.m.-3 p.m. (12s 6d): tea 3.30-7 p.m. (2s 6d).*

Grill Room—lower ground floor, between W. Brompton entrance and Warwick Road entrance. *Lunch 11.30 a.m.-3 p.m. (10s 6d): tea 3.45-5.45 p.m. (3s): dinner 6.30-8.30 p.m. (10s 6d).*

Alpine Tavern—lower ground floor, entrance from ground floor, left of Warwick Road entrance. *Licensed bar, cold buffet and grill.*

Oyster Bar—lower ground floor, halfway between Warwick Road and Philbeach entrances. *Licensed bar, oysters (under the direction of Bentley's Oysters).*

YOUR GUIDE
to Earls Court continues on page 558.

Cars OF THE YEAR

As the pick of the world's cars take their places on the stands at the London Motor Show we present this informal, international survey of new models and technical developments for the guidance of visitors. Observations are not confined entirely to models which are to be shown at Earls Court, and new American cars have been omitted because they are to be the subject of a separate survey in a later issue.

INFORMAL EVE-OF-THE-SHOW SURVEY OF NEW MODELS AND TECHNICAL DEVELOPMENTS

Frisky Coupé

SINCE the closing of last year's London Motor Show, there has been a spasmodic flow, not only of completely new models from British and foreign manufacturers, but also of technical and styling advances applied to established types. In the following pages, the year's progress up to the present time is reviewed, but cars which were to be seen at Earls Court 12 months ago in their current forms are not referred to. The models are categorized according to engine capacity.

Up to 500 c.c.

In Italy further development has improved the little **Fiat** 500 introduced in July, 1957. When tested by *The Autocar* it proved disappointing in performance and in some details of finish. In February, however, a de luxe version was introduced with winding windows, self-cancelling traffic signals, a finger-tip lamp control and wheel discs. On both models the rear seat now is upholstered. Power for both versions has been increased from 13 to 16.5 b.h.p.

In August a sports variant was put into production, following the success of prototypes in the 12-hour race at Hockenheim in Germany, and in the Liège-Brescia-Liège rally.

This has an 8.6 to 1 compression ratio, a modified combustion chamber form, larger inlet and exhaust valves, polished ports, heavier valve springs, a re-designed camshaft, a larger carburettor choke and reduced rotational speed for the engine cooling fan. Its power output is up to 21 b.h.p., giving a claimed maximum between 65 and 68 m.p.h. Externally, the sports 500 is distinguished by its all-steel roof in place of a folding soft top, and by a bold flash along the waist.

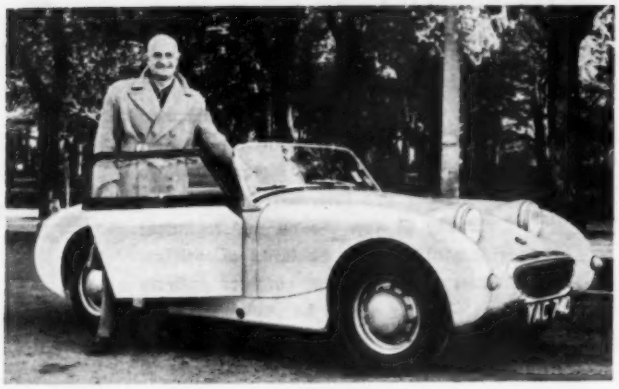
On September 26 a Road Test of the **Frisky** coupé was published, but two weeks earlier its improvements for 1959, not all incorporated in the car tested, were made known. At approximately £500 with hard top the Frisky is costlier than the Ford

Subaru 360

Goggomobil Type 600

Cars of the year

EVE OF SHOW GUIDANCE



Austin-Healey Sprite (with Donald Healey)

Popular, but it does give real fuel economy, 56.5 m.p.g. being averaged for the 675 miles of the test.

A visit to Japan during April enabled a member of the staff to inspect and try a new miniature car which has since gone into full production, the **Subaru**. This has a vertical twin, air-cooled two-stroke of 356 c.c., mounted at the back to drive the rear wheels through swinging half-axles. A monocoque body shell is structurally integral with a ribbed platform, and there is sufficient space for four adults. It was refreshing to find such an original design in Japan, and the suspension system in particular shows great ingenuity.

Latest version of the **Messerschmitt**, the TG500, has four wheels, all independently sprung, and is powered by a 500 c.c. twin-cylinder, two-stroke engine.

An Austrian variant on the **Fiat** 500 was announced at the beginning of November 1957. This is the **Steyr Puch** 500, made in Graz by a well-known motor-cycle manufacturer. Its body panels and front suspension complete are imported from Italy, and in external appearance it differs from the equivalent Fiat only in its dummy radiator grille. The Steyr Puch has a flat twin, four-stroke engine, 70×64mm (493 c.c.), having inclined overhead valves in hemispherical heads. With a 6.5 to 1 compression—it can be run on commercial grades of fuel—it develops 16 h.p. (nett) at 4,600 r.p.m. The designers claim a normal life between major overhauls of some 60,000 miles; it is fitted with lead-bronze bearings, has hard-faced valves with chromed stems, an oil cooler and full-flow filter. It has a four-speed gear box with synchromesh on second, third and top, and a single-plate clutch.

N.S.U. Prince Sport

First described in *The Autocar* of 1 November 1957, the **Vespa** 400 is an Italian design by the well-known scooter manufacturer, but is made exclusively in France. It has a two-stroke vertical twin engine of 394 c.c. and 14 b.h.p., united with its transmission and mounted at the rear. The Vespa is unusual among miniatures in having a separate starter and belt-driven dynamo, and an interesting feature is that design refinements enable the engine to run on a petrol-oil mixture of 50 to 1. When tested briefly with other new French models at Montlhéry during this year's Salon, it made a first-class impression. No space is wasted, and it is roomier within than its exterior dimensions might suggest. By comparison with the small Fiat, it has a deeper screen and avoids a beetle-browed, claustrophobic outlook. It has very large doors, rubber-sprung seats, and a folding soft top. The engine controls are light and precise, and the suspension soft and supple, yet not susceptible to pitch or roll.

500 to 1,000 c.c.

Within the past year or two, the 600 c.c. class has grown much in significance, particularly in Germany, while the vogue for the real miniatures seems on the wane; demand is for four-

Austin A.40

seated vehicles more closely resembling the full-sized product. To meet this, a new and larger **Goggomobil** in prototype form was shown at last year's Frankfurt Show; since then it has reached the production line, but in a rather different form mechanically. There are alternative engine capacities of 579 (Type 600) and 682 c.c. (Type 700), giving 20 and 30 b.h.p. respectively.

The engines are four-stroke flat twins, air-cooled and having inclined overhead valves in hemispherical combustion chambers. The cylinder heads are of light alloy, and there are two carburettors. Synchromesh protects the four forward speeds, and the drive is to the rear wheels via a conventional rigid axle carried on half-elliptic springs.

Another German 600 is the **N.S.U. Prince**, which has not yet appeared at Earls Court. Princes have been driven by *The Autocar* in both Germany and this country, but the type has not been subjected to a full road test. It has a four-stroke, air-cooled, vertical twin engine at the back, this unit being notable for its overhead camshaft driven by a link motion between eccentrics from a half-speed shaft above the crankshaft, as used on N.S.U. motor cycles for some time past. It has all-independent suspension—by coils and wishbones at the front and by swing-axles with concentric coils and dampers at the rear. As tried in two-door saloon guise, it performed very adequately but was rather noisy, especially in the transmission.

On 19 September were published details of a sporting coupé based on the Prince, but having a 50 per cent increase in power (from 20 to 30 b.h.p.). With wind-cheating, up-to-the-minute lines, this elegant newcomer has a claimed maximum of 85 m.p.h., and made its début at the Paris Salon on 2 October.

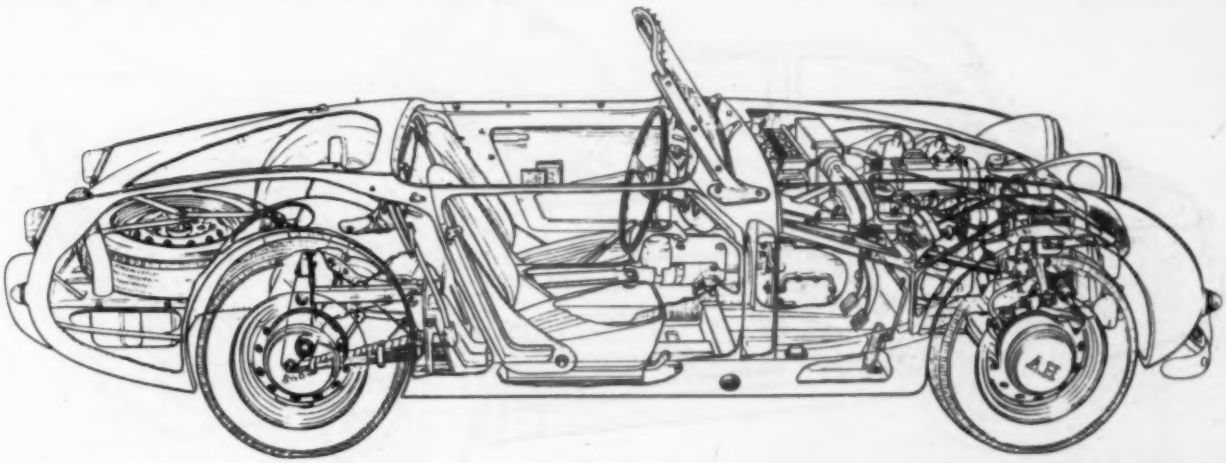
Another German product, described first on 12 September of this year, is the **Lloyd Alexander TS**—a tuned version of the familiar 600 c.c. front-drive car. Prototype versions finished first, second, fourth and fifth in a 12-hour race on the Hockenheim circuit last spring. The overhead camshaft vertical twin engine, mounted across the frame at the front, develops 25 b.h.p. nett at 5,000 r.p.m. on a compression ratio of 7.2 to 1. The four-speed gear box has synchromesh for all forward ratios.

Mainstay of the Lloyd is a tubular central backbone with outriggers for body and other attachments. The chief body panels are bolted together, for easy replacement. Superimposed, transverse semi-elliptic front springs carry the front wheels; at the rear is a new independent system having a fabricated trailing wishbone for each wheel, with a transverse stabilizer bar coupling their outer arms. This layout is said to have transformed the handling from pronounced oversteer to slight understeer, and to give a softer and more stable ride.

Few changes have been incorporated in the smaller **Renaults**, the 750 (or 4 c.v.) and the 845 c.c. Dauphine. These rear-engined cars have each received a step-up in compression ratio for 1959, from 7.25 to 7.75 (8.0 for Dauphines destined for the U.S.A.), and are said to have gained in both performance and fuel consumption. They each have tail-wagging tendencies unless well laden, and the wide spacing of their three gear box ratios is open to criticism. During the past few months the Gordini speed-model Dauphine, whose specification includes a special four-speed gear box, has gone into full production at a daily rate of about 30. When tried at Montlhéry this month, it was found a particularly rewarding little car.

Chief news from the Citröen-controlled **Panhard** concern for the new year is that right-hand drive will be available henceforward. Development over the past 12 months has culminated in a quieter and smoother-running vehicle. A tougher crankshaft, improved inlet and exhaust silencing, minor modifications to the gear box, a stronger forward cross-member, more powerful interior heating and smaller wheels are new features.

From Sweden last May came news of a competition version of the **Saab** 93B, the G.T. 750. This resembles the little 93B in appearance, having the same streamlined shell to carry four passengers. Its three-cylinder two-stroke engine, mounted forward to drive the front wheels, produces 38 b.h.p. gross at 5,000 r.p.m. in standard form, but in G.T. guise it is available in alternative stages of tune, for 45 or 55 b.h.p. Larger brake drums balance the greater performance of the car.



Austin-Healey Sprite

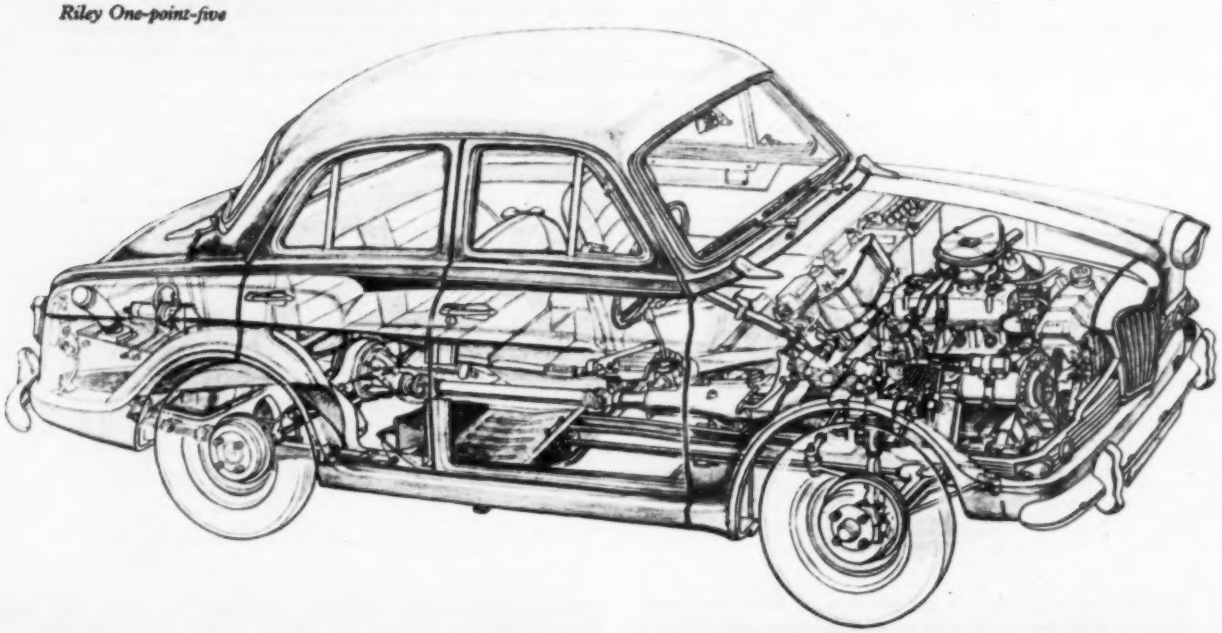
D.A.F.

Sunbeam Rapier II

Riley One-point-five

sultative capacity, and this is the first tangible result of his inspired application. The A.40 has a particularly pleasing and simple frontal treatment, and the interior treatment of the body is likewise stylish but simple. Most of the mechanical components of the A.40 are derived from other B.M.C. products; it has the A-type 948 c.c. o.h.v. engine of the A.35 and Morris Minor 1000, but its wheel track and base dimensions are between these two.

In *The Autocar's* Road Test (19 September 1958), tribute was paid to its large-car feel on the road, and it proved to perform efficiently for its engine capacity, combining a maximum speed of 72 m.p.h. with an overall fuel consumption of 38 m.p.g.



Belle of the Amsterdam Show in February of this year was a small four-seater, two-door saloon called the **D.A.F.**, the first all-Dutch car for a very long time and also the first small car in the world to have fully automatic (Variomatic) transmission—via V-belts on expanding and contracting pulleys.

The D.A.F. engine—in the front of the car, but driving the rear wheels—is an air-cooled, four-stroke flat twin of 596 c.c. It has overhead valves and a gross output of 22 b.h.p. at 4,000 r.p.m., the compression ratio being 7 to 1. Its breathing has been restricted deliberately to ensure long life and dependability. A notable point for the owner-driver is that all chassis greasing points have been eliminated. It has all-independent suspension. Production of the D.A.F. has already commenced at Eindhoven, and three of these cars will be on show at Earls Court.

Higher in this capacity class the main news has been British, with the introduction of two particularly interesting cars by the B.M.C. First was the **Austin-Healey Sprite,** which was introduced in May and road-tested in June of this year. Although compact in overall dimensions, the Sprite is no miniature in the essential attributes of a motor car. It is powered by the 948 c.c. pushrod o.h.v. B.M.C. A-type engine tuned to give 45 b.h.p. nett at 5,500 r.p.m.

In standard form it can exceed 80 m.p.h., and cover a quarter-mile from a standing start in 21.7sec. The experts have praised the handling of the Sprite, which has a rack and pinion steering gear of exceptional precision. It is likely to make a substantial contribution towards our export trade.

A month ago came the first news of an entirely new style of Longbridge product, the **Austin A.40.** This is a two-door four-seater, with its roof-line extended back in the manner of an estate car. Pinin Farina, the Italian stylist and coachbuilder, is currently engaged by the Austin Motor Company in a con-

Triumph TR3

Vauxhall Victor Estate Car

THE MANAGING DIRECTOR'S CAR

THE NEW 4 LITRE

ARMSTRONG SIDDELEY

Star Sapphire

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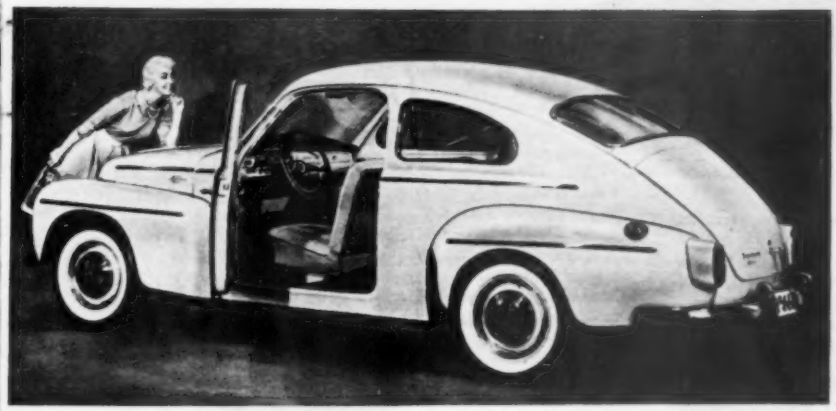
Singer Gazelle Convertible

Volvo PV 544



Cars of the year

EVE OF SHOW GUIDANCE

1,000 to 1,500 c.c.

New variations of the Rootes trio of small cars have been introduced during the past 12 months. These are the **Sunbeam** Rapier, the **Singer** Gazelle and **Hillman** Minx, all now sharing a 1,494 c.c. four-cylinder o.h.v. engine tuned according to their duties and prices.

First to appear was the Sunbeam Rapier Series II in February. Outwardly this car reverted to the traditional Sunbeam radiator grille, but advanced into the space age with flamboyant tail-fins at the rear quarters.

At the same time, the steering-column gear change was abandoned in favour of a centre floor change, leather trim gave way to plastic material, a recirculatory ball-type steering gear by Burman was introduced, the final drive ratio stepped up, the suspension toughened and the Laycock-de Normanville overdrive, hitherto standard equipment, became an extra. With 8.5 to 1 compression ratio, the Series II's engine produces 68 b.h.p. at 5,200 r.p.m.

Tested on 28 March, the new Rapier reached 90 m.p.h., covered the standing quarter-mile in 21.1sec, and its overall fuel consumption was 31.5 m.p.g. Its steering was considered greatly improved and the standard of sound insulation combined with the higher gearing provided more restful motoring for the passengers. A new body style for the Rapier is an attractive three-position convertible, similar to those of the Singer Gazelle and Hillman Minx.

On 5 September 1959, minor improvements for the Singer Gazelle were announced. The Rootes-type engine had earlier become an alternative to the overhead camshaft Singer unit, and is now the standard fitting. A Singer Gazelle IIA was tested on 8 August 1958, powered by the Rootes engine (with a single carburettor installation) giving 56 b.h.p. nett; it recorded well over 80 m.p.h., and covered the standing quarter-mile in 22.4sec. It is a notably smooth and refined car, with excellent handling qualities and brakes. With the soft top, however, the body shell clearly loses a little of its rigidity. The price of the Singer estate car was reduced last month, and it now costs £665 basic (£998 17s including purchase tax)—the same as the Gazelle convertible.

Details of the latest Hillman Minx Series III were published on 12 September. Apart from minor styling changes and the fitting of the larger engine, the Minx has also higher axle gearing. A surprising change in ratio of first gear has closed the already narrow gap between this and second.

At the beginning of the year an enlarged Husky was introduced, powered by the 1,390 c.c. o.h.v. engine in place of the previous side-valve unit. It has a wheelbase 2in longer than that of its predecessor, and the luggage platform has been extended by 7½in. At the same time the price was increased from £430 to £465 basic (£646 7s to £698 17s, including tax).

From B.M.C. in November of last year came a new small **Riley**, the One-point-five, based on the same components as the Wolseley 1500, but having a considerably greater power output of 68 b.h.p. nett at 5,400 r.p.m. One of these cars was used by *The Autocar* staff when covering the Monte Carlo Rally a few months later. It has a way of covering long distances at considerable speed, the high final drive gearing allowing all-day cruising near to the maximum. Leg room for the occupants at front and rear is somewhat restricted for long journeys.

The **Austin** Metropolitan now has the high compression, B.M.C. 1,500 c.c. engine with lead indium bearings and a full-flow oil filter.

In March, two Australian parallels to the 50 b.h.p. Wolseley 1500 were introduced, the **Morris Major** and **Austin Lancer**, identical except for their radiator grilles. The plan is to step into a market hitherto almost monopolized by the Volkswagen.

An estate car version of the **Vauxhall** Victor came on to the market in February—the first vehicle of its type to be designed and built at Luton. It has four side doors and a one-piece rear door which hinges upwards. The wheelbase, track, width and height are the same as for the saloon, and the overall length is only 1in greater.

Road tested by *The Autocar* on 11 July, it reached a maximum of 72.5 m.p.h., and its overall fuel consumption was 30.7 m.p.g.

On 5 September came an announcement from Sweden of the **Volvo** PV 544, replacing the PV 444. It is made in four versions —Standard, Special 1 and 2, and Sports. The body shell is little changed, except that a one-piece screen replaces a divided V, and the screen wipers have been re-located. Its pushrod o.h.v. engine of 1,583 c.c. was introduced last year; for the Standard and Special versions it produces 60 b.h.p. at 4,500 r.p.m., but for the Sports model, which has a compression ratio of 8.2 and two S.U. carburettors, it produces 85 b.h.p. at 5,000 r.p.m. A new all-synchromesh four-speed gear box is fitted to the Special 2, and to the Sports saloon. The more elegant four-

Cars of the year

EVE OF SHOW GUIDANCE

Daimler Majestic

door Amazon, of which a test was published on 6 June, remains unchanged.

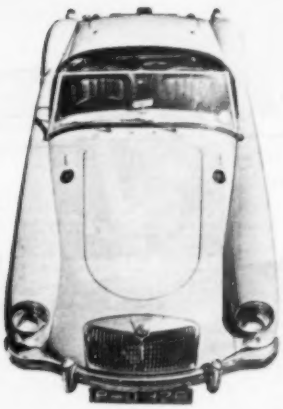
Making its first Show appearance at Paris earlier this month was the re-styled **Simca** Aronde, termed the P.60. Its mechanical specification and prices are unaltered, however, thus its performance and handling should be identical with those of the Aronde Montlhéry, of which a test appeared on 23 May. The car's road manners and the liveliness of its engine encouraged hard driving, which may account for an overall fuel consumption of under 30 m.p.g. It is a real driver's car with admirably precise steering and remarkable cornering ability.

In July came minor styling changes for the Bertone-bodied **Alfa Romeo** Giulietta Sprint coupé. Mechanically, however, it was unchanged and still offered in two forms—as the Sprint, with 8-to-1 compression and 70 b.h.p., and the Sprint Veloce, with 8.5 compression and 90 b.h.p.

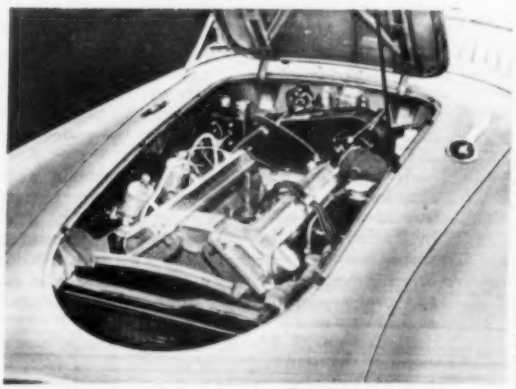
At Turin last November the **Fiat 1200** made its bow, replacing the TV version of the 1100. There are two body styles, the Roadster and the four-door Gran Luce (Full Light) saloon; an example of the latter was tested on 12 September last. As compared with the 1100, the bore has been increased from 68 to 72 mm, and the power output is now 55 b.h.p. instead of 40, so that performance has been boosted considerably.

In mechanical specification, there are no other major changes, except that self-centring brake shoes are fitted. The Roadster has a central floor gear change and a claimed maximum of 90 m.p.h. This may be a modest estimate, since the Road Test saloon achieved a mean of 86 m.p.h., and a best in one direction of 89 m.p.h. It accelerated from a standing start to 60 m.p.h. in under 20sec, covering the standing quarter-mile in 21.6sec, yet averaged 34.5 m.p.g.—a remarkable performance for a capacity of only 1,221 c.c.

Since the end of August the name Goliath has been dropped from the 1,100 c.c. car made by the **Borgward** group (although it is retained for some of their commercial products), and the



Twin Cam M.G.A (engine below)



Aston Martin DB4

Jaguar XK150 Roadster

Cars of the year

EVE OF SHOW GUIDANCE

familiar name of Hansa substituted. The new Hansa 1100 is the same car as the previous Goliath, having an overhead valve, water-cooled, flat-four engine. It is available in three styles—as a two-door saloon, two-seater sports coupé and a station wagon. For the sports car, the power output has been raised to a nett figure of 55 b.h.p. at 5,000 r.p.m. The standard 40 b.h.p. saloon has a claimed maximum of over 70 m.p.h., and the sports coupé of 85-90 m.p.h.

Largest production in Japan's 1,500 c.c. category is of the **Toyota** Crown and Crown de luxe, a conventional 5/6-seater with soft suspension well suited to Japanese road surface conditions. Both types retain the same body shell and main mechanical details for 1959, although there are new radiator grilles. For the Crown de luxe, the engine compression has been raised to 8 to 1, giving a nett output of 60 in place of 55 b.h.p. This model also now has 14in wheels in place of 15in, and brake drums of smaller diameter but increased width.

1,500 to 2,000 c.c.

There have been developments from the factories responsible for two of Britain's most prominent sports models. First, in January, a revised version of the **Triumph** TR3 appeared. For an increase in basic price of £19 the new model offers a new, wider grille, whilst the head lamps have been recessed more deeply into the front apron. Exterior door handles are fitted now, and the seats have been re-shaped. There are no mechanical changes.

In mid-July the long-awaited twin camshaft **M.G.** A was announced, costing an extra £180 basic (£270 including tax). To take full advantage of Appendix J of the International Sporting Code, the capacity is increased to 1,588 c.c., by enlarging the bore to 75.4 mm. This engine has copper-lead bearings, a new design of connecting rod and a compression ratio of 9.9 to 1. It produces 58 per cent more power than the standard M.G. A unit for a weight penalty of only 50 lb. Its maximum torque is also up by 35 per cent.

Dunlop disc brakes and centre-lock steel disc wheels are standard on this model, which in *The Autocar's* Road Test on 18 July reached a mean maximum of 113.5 m.p.h., accelerated from a standstill to 60 m.p.h. in 13.3sec and to 90 m.p.h. in 30sec for an overall fuel consumption of 21.8 m.p.g. The performance achieved is at the expense of some noise and roughness, but as a ready-made competition car it has a lot to offer at a reasonable price.

Porsche Convertible D

Citroën I.D.19

Alfa Romeo 2000

Eleven months ago the **Standard** Motor Company introduced Borg Warner automatic transmission as an optional extra for the Standard Vanguard III saloon and estate car. More recently, a new pick-up version of the Vanguard has been introduced, whilst the 90 b.h.p. Vanguard Sportsman has been dropped from the range.

Although the **Citroën** I.D.19 was at the Paris Salon last year, its production in this country with right-hand drive commenced after that, and it will be seen at Earls Court for the first time. The I.D.19 is similar in appearance to the D.S.19, but hydraulic power is confined to the control of its hydro-pneumatic suspension system. When an I.D.19 was tested by *The Autocar* (29 August 1958) it was found that its performance was slightly superior to that of the D.S. It is a car for long, straight roads, at cruising speeds up to a safe limit dictated only by the road conditions and not by any mechanical limitations of the car. It is particularly spacious for legs and knees, has a vast window area, and a deceptively capacious luggage boot.

At Turin last year, a new two-litre **Alfa Romeo**, the 2000, was shown for the first time. A full six-seater with a relatively high roof-line and very large window area, this has a claimed maximum of 100 m.p.h. on 105 b.h.p. It has a slightly longer wheelbase than the 1900, and wider tracks front and rear, as well as a five-speed gear box.

In March, minor improvements to the Carrera G.T. **Porsche** were incorporated. Then, replacing the open Speedster, the new convertible D with bodywork by Drauz was announced in August. This is more luxuriously equipped than the Speedster, having winding windows, a more stylishly shaped hood, a larger rear window and more comfortable seats. Alternative 1,600 c.c. units are available for the convertible, giving either 60 or 70 b.h.p.

Another German newcomer announced on 12 September is the 190D diesel-engined **Mercedes-Benz.** This has a single o.h.c. unit of 1,897 c.c., with pre-chamber combustion and glow-plug starting. It delivers 55 b.h.p. at 4,000 r.p.m. and has a peak torque of 83 lb ft at 2,200 r.p.m.

Cars of the year

EVE OF SHOW GUIDANCE

Alvis 3-litre Park Ward

2,000 to 4,000 c.c.

One of the most inspiring specialist sports cars to be shown in London for some time is the new **Aston Martin** DB4, of which a full description was published in *The Autocar* two weeks ago. Thus its mechanical specification will be still fresh in the reader's mind. In brief, it has a 3.7-litre twin overhead camshaft engine with a usable output of 240 b.h.p., and is probably the fastest four-seater production car in the world today.

Another extremely potent limited-production car is the **Ferrari** 250 Testa Rossa, a 3-litre sports racer placed on the market just before last Christmas. It is basically similar to the works Le Mans cars of 1957, having a vee-12 engine with single overhead camshaft, bore and stroke 73 × 58.8 mm. With six double-choke carburettors, it develops 300 b.h.p. at 7,200 r.p.m. The specification includes a live rear axle with self-locking differential and a four-speed synchromesh gear box. The Ferrari's dry weight is 1,763 lb and its maximum speed approaches 170 m.p.h.

A striking British sports car, of which the first details were published on 21 March 1958, is the **Jaguar** XK150 Roadster—in effect, the modern counterpart of the original XK120 two-seater. The Roadster is offered with three optional degrees of engine tune—Standard, with 190 b.p.h., Blue Top, with 210 b.h.p., and Gold Top, with 252 gross b.h.p. With the Gold Top unit it is termed the Type S. The Roadster was shown in New York in April, and naturally the bulk of the production is exported.

In Type S form it should have a maximum of around 140 m.p.h. and cover a standing quarter-mile in less than 17sec—all with extreme smoothness and relative silence.

Latest Jaguar product, the Mark IX, has a capacity of 3.8 litres, and is equipped with disc brakes on all four wheels, and power-assisted steering. In other major respects chassis and body are identical with those of the current Mark VIII. It is available with a manual four-speed gear box, with Laycock-de Normanville overdrive as an optional extra, or with Borg Warner automatic transmission. It was described in *The Autocar* of 10 October.

Supplementing the One-o-Four and clearly a development of that car is the new **Daimler** Majestic, which sailed into the showrooms early in July. It has a bore and stroke of 86.4 × 108 mm, raising the capacity from 3,468 to 3,794 c.c. The compression ratio is still 7.6 to 1, but gross power is up by 10 to 147 b.h.p. The Majestic has Dunlop disc brakes and Borg Warner automatic transmission. Its body is wider, compared with the One-o-Four, and its appearance has been improved by lowering the radiator 2in. When tested on 25 July, the new Daimler comfortably topped 100 m.p.h. maximum, and reached 60 m.p.h. from a standing start in 15.3sec. Its overall fuel consumption was 17.6 m.p.g., measured over some 1,100 miles.

Also in July a new **Ford** range entered the Australian market, these being the V-8 Customline saloon and Mainline pick-up, made at the Ford plant in Australia. Most of the differences between these cars and their predecessors are confined to changes of face.

A new jewel from **Armstrong Siddeley**, the Star Sapphire 4-litre, is described fully elsewhere in this issue.

A supplementary version of the **B.M.W.** 3.2-litre, the 502 Super, appeared at the spring show in Geneva, differing from the standard 502 by having a Type 503 engine of 140 b.h.p. under its bonnet; thus the 502S is claimed to reach 110 m.p.h.

Latest version of the **Alvis**—the TD21—was dealt with in this journal only last week. It is one of the most enchanting owner-driver cars imaginable. The present English two-door four-seater body has greatly increased passenger space as compared

Morris Marshal

Bristol 406

Rover 3-litre

with those made hitherto. This is now made by Park Ward. Mechanically the car is little changed.

Another specialist coachbuilder, Vanden Plas (now controlled by the B.M.C.), is responsible for a special version of the **Austin** A.105, introduced last spring. This is the standard product mechanically, but is more richly equipped and finished. The Vanden Plas A.105 costs £250 more than the normal car.

Wearing the same basic engine within a very different shell is the **Austin-Healey** 100-Six, which benefited last November from an improved cylinder head with separate inlet ports, a detachable manifold, larger valves, and a higher compression ratio—8.5 instead of 8.25. This raised its maximum output by 15 b.h.p. to 117, as well as stepping up its torque figure from 142 to 149 lb ft. At the same time the price rose from £762 to £817 basic. At the end of May a Road Test of this model fitted with a hard top quoted a maximum speed of 111 m.p.h., a standing quarter-mile in 18.1sec. Its overall fuel consumption was 21.2 m.p.g. It has a smooth and tractable engine which becomes fussy only if driven very hard, rather heavy steering and efficient drum brakes. In June the token rear seats were abandoned, with some benefit to its very limited luggage capacity.

On 1 November last year the new Australian **Morris Marshal** was described. Except in name and grille treatment this is identical with the British Austin A.95. This is an interim model, for the B.M.C. intend in time to produce 100 per cent Australian-designed, built and tested cars. In the late spring of this year another Australian car, General Motors' 2.17-litre six-cylinder **Holden,** received a face-lift and a minor boost of power output to 70 b.h.p. It is marketed as a saloon with three optional standards of equipment, as a station wagon and as a pick-up.

Other recent home news is that the 3-litre **Lagonda** is out of production and will hence be absent from Earls Court—but David Brown has given his assurance that a completely new Lagonda will appear in due time.

In August the long-awaited 2.2-litre **Bristol** 406 with British-built body by Jones of Willesden was announced. A smart and beautifully engineered two-door four-seater saloon, it must cost more per unit b.h.p. under the bonnet than almost any other car—£2,995 basic (£4,493 17s with tax) for 105 b.h.p. Bristol cars are not submitted by the manufacturers for full Road Tests.

Great things are expected of the entirely new **Rover** 3-litre, first described on 26 September. It is the first from Solihull to have a composite body and chassis structure, and is notably longer, lower and wider than the rest of the range. Laminated leaf-type torsion bars are used for the front suspension, but the rear axle is conventional.

The engine is based on established Rover practice in having overhead inlet and side exhaust valves, but its crankshaft is borne in seven main journals in place of four. Output is 115 b.p.h. at 4,250 r.p.m., and the maximum torque figure 164 lb ft at an exceptionally low crankshaft speed—1,500 r.p.m.

In April a 2½-litre petrol engine with overhead valves was introduced for the Land-Rover Series 2. The Series 1 station wagon on a 107in wheelbase with the 2-litre engine is still listed. Series 2 vehicles have a slightly wider track to reduce the turning circles, and wheelbase alternatives of 88 and 109in. They have a greater range of spring movement, and sharp corners of the body panels have been rounded off; the side windows now are of glass. They have also pendant-type control pedals and improved seating arrangements. The new petrol engine is based on the 2-litre Rover diesel unit; it develops 70 b.h.p. nett at 4,250 r.p.m.

Rivalling the ubiquitous Land-Rover is a new B.M.C. four-wheel-drive all-purpose vehicle, the **Gipsy,** which created quite a stir upon its public release in February. It is particularly notable for having all-independent suspension, each wheel being carried on a trailing arm; Flexitor rubber-in-torsion units developed by Spencer, Moulton (of the Avon Group) are the springing medium. The body is of welded steel pressings, and there is seating for three in front, with an option for six extra seats in the "box."

Austin Gipsy

Opel Kapitän

Austin A.105 Vanden Plas

Cars of the year

EVE OF SHOW GUIDANCE

Facel Vega Excellence

Mercedes-Benz 300SL Roadster (detachable hard top)

Alternative engines for the Gipsy are an o.h.v. petrol unit of 2,199 c.c. (6.8 to 1 compression ratio, 65 b.h.p. at 4,000 r.p.m.) and a 2,178 c.c. diesel (compression ratio 20 to 1, 55 b.h.p. at 2,500 r.p.m.). The petrol Gipsy, at £650, costs £10 more than the cheapest Land-Rover.

Two weeks ago the new 2.6-litre **Humber** Super Snipe made its bow and was described fully in *The Autocar*; its engine capacity is less than had been expected—in fact, many who might have been contemplating buying a Hawk might well decide to pay an extra £150 for the extra smoothness and power of the 105 b.h.p. Super Snipe. It is the first Rootes Group car to have inclined overhead valves and a three-speed gear box. It shares a body shell common with the Hawk, but there is a slightly modified frontal treatment.

In mid-September the **Régie Renault** made known very minor changes to the 2,141 c.c. **Frégate** range. It has a simplified front grille and, at last, a 12-volt electrical system. A fresh luxury estate car, the **Manoir,** has de luxe interior trim and Transfluide semi-automatic transmission.

From Germany in June details arrived of the latest version of the 2½-litre six-cylinder o.h.v. **Opel** Kapitän by the General Motors subsidiary. It has a panoramic screen and rear window, and a power increase from 70 to 80 b.h.p. The bonnet line and overall height have both been lowered. Other details include anti-roll bars front and rear, an option on Borg Warner overdrive, and recirculating ball steering. Its claimed maximum speed is 90 m.p.h., and average fuel consumption about 30 m.p.g.

A new fuel injection version of the remarkable 220S **Mercedes-Benz,** the 220SE, was launched very recently in Stuttgart. This innovation has endowed it with 9 to 12 per cent more power for an extra £150. Another 10 b.h.p. brings the power limit to 130 b.h.p. at 5,000 r.p.m. These new developments were dealt with fully in *The Autocar* dated 12 September. A handsome detachable hardtop recently became available for the 300SL sports model. For the big 300D power-steering and an air-conditioning unit are now available.

Humber Super-Snipe

Over 4,000 c.c.

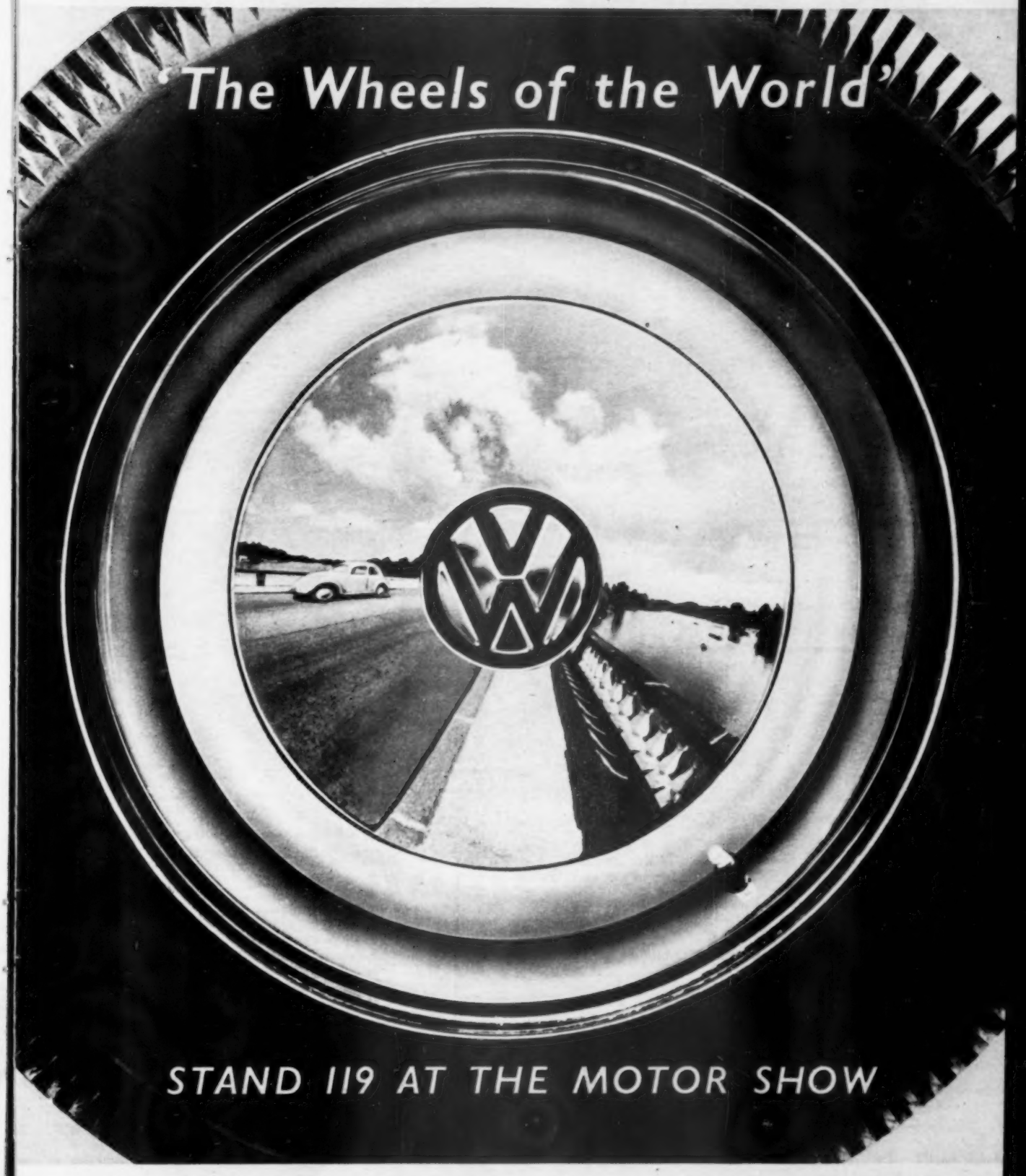
In this large capacity class, it is noteworthy that there are no German cars made; that there is only one French car—and this fitted with a North American engine; and that the only Italians are the very specialized **Ferrari** and **Maserati.** In this country we produce the **Rolls-Royce** and **Bentley,** each with the same engine of 4,887 c.c., and the **Daimler** DK400 of 4,617 c.c.; thus this realm is very nearly the monopoly of the U.S. manufacturer, who indulges himself with very much larger capacities than these, even in the low-price field.

When a **Facel Vega** F.V.S. was tested at the time of the last Geneva Show, it reached 135 m.p.h. on a Continental motor road and accelerated to 100 m.p.h. in 23.8 seconds. For 1959 this car has been fitted with a still more potent Chrysler unit and renamed the HK500 (*The Autocar,* 19 September). With 360 b.h.p. (gross) under the bonnet, it is said to reach 100 m.p.h. in about 18sec, and to have maxima of 130 or 150 m.p.h., according to the final drive ratio fitted. It is one of the world's most glamorous and exciting cars.

Another large-engined car, the exotic Spanish **Pegaso,** has lately gone out of production.

Mercedes-Benz 220SE

VOLKSWAGEN



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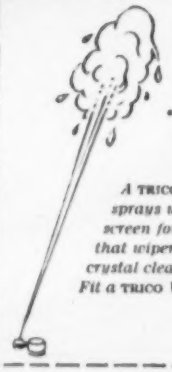

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Smee's T.F.84

Once again the Sphinx mascot graces an Armstrong Siddeley bonnet. Parking lamps are mounted high on the wings, amber flashers are fitted, and the twin fog lamps are standard

More Powerful Armstrong Siddeley With Automatic Transmission

1959 MODELS *Star Sapphire*

FIRST examples of Armstrong Siddeley's new Star Sapphire have started to leave the works at Coventry; a substantial production programme has been planned. While the car may seem familiar at first sight in its general outline, mechanical changes, general development and important new items of equipment have all combined to transform this model for 1959.

Principal feature of the Star Sapphire is the new, more powerful 4-litre engine, designed to give high torque at low r.p.m., ensuring exceptional flexibility and good matching with the characteristics of the Borg Warner automatic transmission which is now standard equipment. Additional standard fittings are servo-aided brakes with discs for the front wheels, and integral, power-assisted steering. Among important detail changes are the provision of an independent heating system for the rear passengers, and demisting of the rear window.

The 346 Limousine continues as previously with synchromesh gear box, but automatic transmission becomes available at extra cost.

Engine

A revised cylinder block, cast in one with the crankcase, is used for the new 3.9-litre over-square engine. This accommodates the increased bore diameter and provides water passages between each cylinder. Vandervell lead-indium is used for the big end and main bearings, and the connecting rods, derived from those of the 3,435 c.c. engines, have been stiffened at the webs and radii. The bearing caps have also been strengthened, and a vibration damper is fitted at the front end of the crankshaft. The pistons are fitted with two compression and one oil control rings. A larger capacity sump carries 14 pints, compared with the previous engine's 11 pints, and the oil pump feed has been increased by 60 per cent.

Exhaust valves, which have stellited stem tips, are of KE.965 steel; compared with those of the 346 engine, the valve head diameters have been increased by 0.1in, making the sizes 1.80in inlet and 1.59in exhaust. They are closed by double coil springs, and to cut down reciprocating weight, the pushrods are formed of drawn steel tubing of 0.028in wall thickness.

A six-port induction system is cast internally in the cast iron cylinder head, and separate, water-heated alloy manifolds carry the twin downdraught Stromberg carburettors, which are fed from the 16-gallon tank by an A.C. mechanical pump. A dual exhaust system is used. The manufacturers claim that the new Star engine, in addition to a greatly increased power output, also has an improved fuel consumption range when compared with the 346 engine.

Steering

Burman power-assisted steering is fitted; the operation of this new system was fully described in last week's issue of *The Autocar*. On the Sapphire the pump for the steering gear is located on the back of the generator, to which it is connected by a flexible coupling. They are driven by a double belt from the crankshaft.

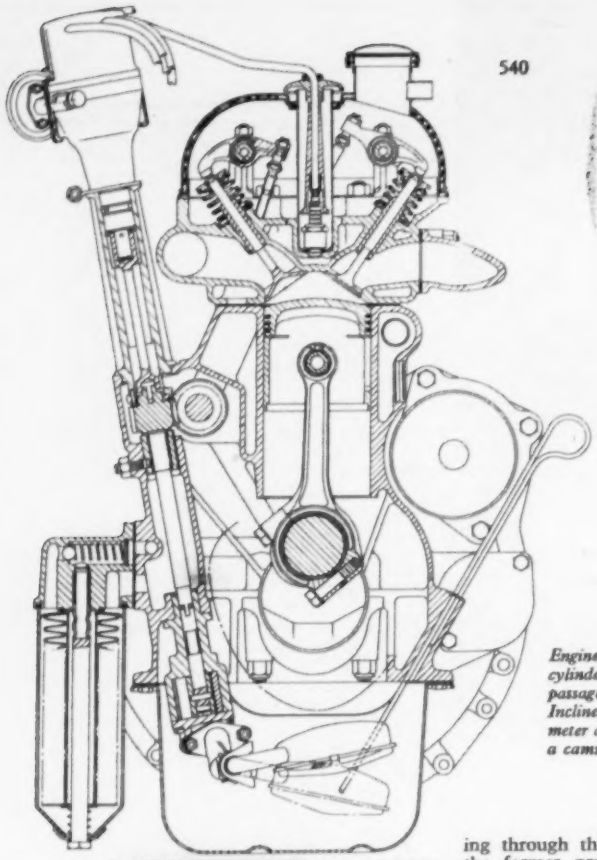
Brakes

Hydro-Vac servo assistance is applied to the Girling braking system; a reservoir is incorporated to allow up to five braking applications with a dead engine. Disc brakes are fitted at the front, and 12in diameter drums with two-trailing shoes at the back—this combination gives ample stopping power for the performance of the Star Sapphire and also enables a powerful hand brake to be fitted. Splash guards are placed on the insides of the discs, to keep grit and water off the surfaces. The friction pads are wedge-shaped; with a total friction area of 30.5 sq in, the pads sweep a 280 sq in area of disc, compared with the 170 sq in of the rear drum brakes, which have a friction linings area of 90 sq in.

Suspension

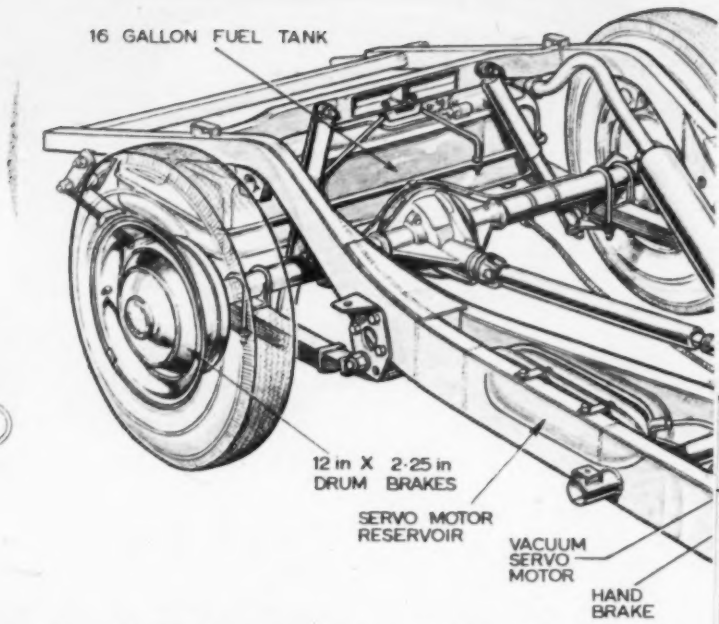
Provision has been made to adjust the camber angle of each front suspension by means of steel shims, and this should ease servicing problems. The long half-elliptic rear springs have reverse camber, and the rear shackles are mounted beneath the frame, instead of with the shackle pin pass-

Below left: Entry is easy to the deeply upholstered seats, which may be had covered with two-tone leather. There is a hinged pocket in the back of each front seat. Below right: Highly polished veneer covers the facia and window surrounds. Right: The luggage locker is lined and the spare wheel is housed beneath its floor, with a tray containing a kit of small tools.



Engine cross-section showing the new cylinder block with generous water passages around the enlarged bores. Inclined valves of increased head diameter are operated by push-rods from a camshaft carried high in the block

On the right door pillar is the control for the rear compartment heater. The switch operates the heater fan. Grab handles are fixed to each pillar and on the left of the facia



ing through the frame members as was the former practice. "Helper" spring leaves have been omitted, and a thick rubber pad is secured to the underside of the chassis frame on the centre line of the axle; compression of this pad provides progressive damping under load. Armstrong telescopic dampers are fitted front and rear.

Transmission

Automatic transmission is provided by a normal Borg-Warner box. The gear control lever is mounted on the left of the steering column and the positions are indicated on an illuminated quadrant; a manual control permits the intermediate gear ratio to be held up to its maximum speed of approximately 60 m.p.h. The divided propeller shaft has a rubber-mounted steady bearing.

Body

The all-steel body, built by Armstrong Siddeley at Parkside, Coventry, is rust-proofed, and all its undersurfaces are sprayed with sound-deadening material before the body is painted. The doors are hung on their forward edges, and they seat on double rubber sealing strip. A wide choice of colour schemes is offered.

Seating

A lot of work has been carried out to make the interior as comfortable as possible. The seats are built up on spring cases, with soft rubber Vitafoam fillings covered with best quality leather. The front seats are separately adjustable for leg room; the angle of the back rests (which are curved to give lateral support when cornering) is not variable. Central folding arm rests are provided, and there is an arm rest on each front door.

The floor of the rear compartment is flat, and in front there is only a shallow protruberance over the gear box. Close-fitting carpet covers the whole floor, and a rubber mat protects it from concentrated wear by the heels of a driver's shoes. Each front door has a map pocket with a spring-loaded flap; there is an ashtray in the forward part of the garnish rails in addition to one in the back of the left front seat.

One of the striking features of the body interior is the quality of the walnut veneer facia and door rails; these extend round the window frames and windscreen, and the door centre pillars are also in walnut veneer. The work is well carried out, and absence of screw heads is appreciated.

Instruments

In a rectangular central panel of the facia are grouped the switches and the front compartment heater controls with

SPECIFICATION

ENGINE

No. of cylinders	6 in line
Bore and stroke	97 x 90mm (3.82 x 3.54in)
Displacement	3,990 c.c. (243.49 cu in)
Valve position	O.H.V.
Compression ratio	7.5 to 1
Max. b.h.p. (gross)	165 at 4,250 r.p.m.
Max. b.m.e.p.	160 lb sq in at 2,000 r.p.m.
Max. torque (gross)	260 lb ft at 2,000 r.p.m.
Carburettor	Stromberg DAV42 twin downdraught
Fuel pump	AC mechanical
Tank capacity	16 Imp. gallons (73 litres) including 2 gallons (9 litres) reserve
Sump capacity	14 pints (8 litres)
Oil filter	Full flow
Cooling system	Pump, fan and thermostat
Battery	12 volt, 64 amp hr

TRANSMISSION

Clutch	Fluid torque converter
Gear box	Borg-Warner automatic
Gear lever position	Steering column lever, intermediate gear hold.
Overall gear ratios	Direct top 3.77; intermediate 5.41 to 10.82; low 8.674 to 17.348; reverse 7.574 to 15.148.
Final drive	Hypoid bevel, 3.77 to 1.

CHASSIS

Brakes	Hydraulic, vacuum servo assisted; front disc, rear drum
Disc diameter	11.82in
Drum diameter and shoe width	12 x 2.25in
Suspension: front	Independent, coil and wishbone
rear	Semi-elliptic leaf springs
Dampers	Armstrong telescopic
Wheels	Steel disc
Tyre size	6.70—16in
Steering	Burman integral power
Steering wheel	Two-spoke, 17in dia
Turns, lock to lock	3½

DIMENSIONS

Wheelbase	9ft 6in (289.6cm)
Track, F	4ft 9.875in (147cm)
R	4ft 9.5in (146cm)
Overall length	16ft 2in (492.8cm)
Overall width	6ft 2in (188 cm)
Overall height	5ft 2in (157.5cm)
Ground clearance	8.5in (21.6cm)
Turning circle	38ft (11.58m)
Kerb weight (with 5 gal petrol)	3,920 lb

PERFORMANCE DATA

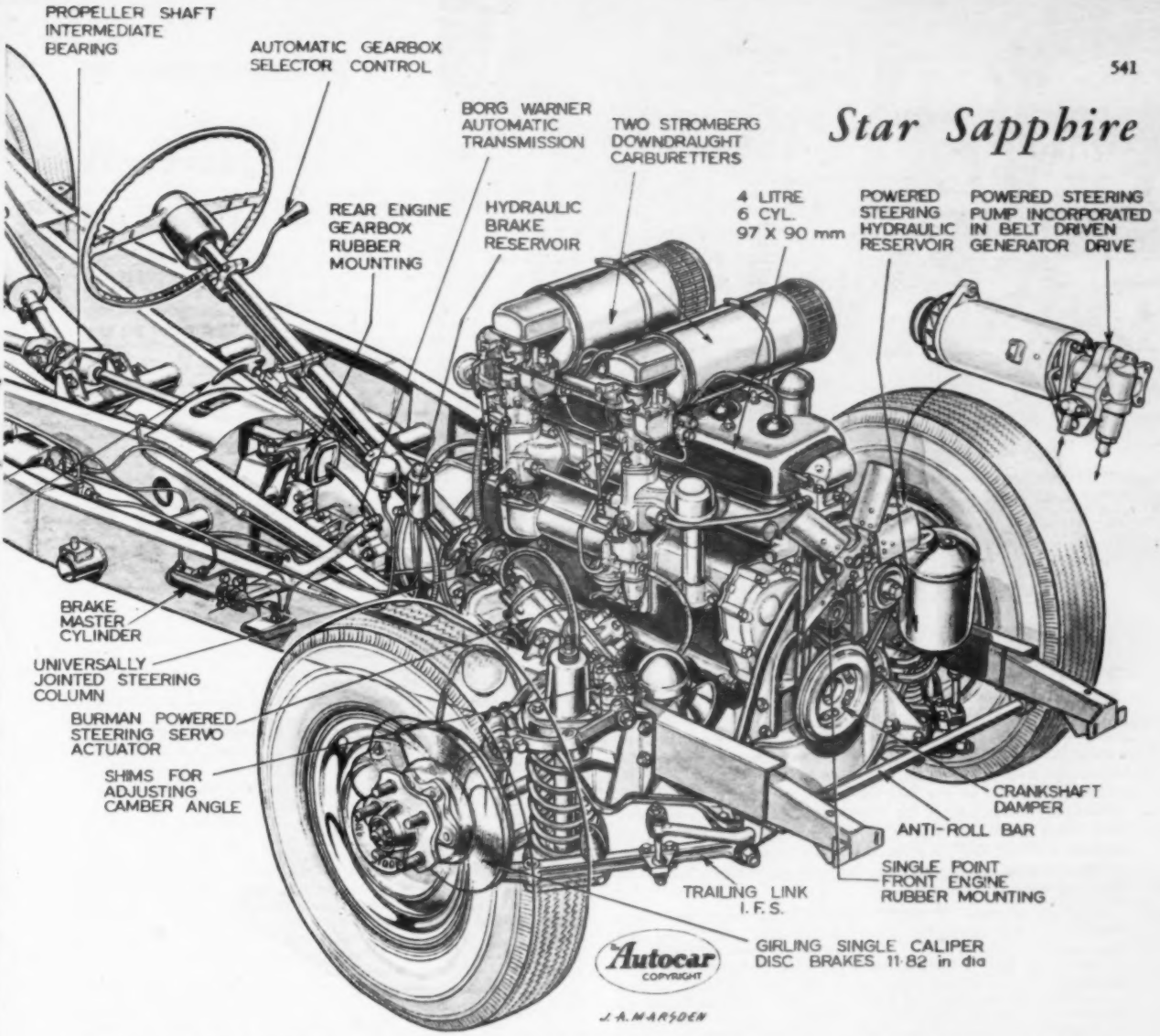
Top gear m.p.h. at 1,000 r.p.m.	21.8
Torque lb/ft per cu in engine capacity	0.94
Brake surface area swept by linings	Front, 280 sq in; rear, 170 sq in
Weight distribution (dry)	F, 51 per cent R, 49 per cent

PRICES

STAR SAPPHIRE: Saloon, with Borg-Warner automatic transmission, disc front brakes and Burman integral power steering: **Basic** £1,763; Purchase Tax £882 17s; **Total** £2,645 17s.

SAPPHIRE 346: Limousine with synchromesh gear box: Basic £1,910; Purchase tax £956 7s; **Total** £2,866 7s. Limousine with automatic gear box: Basic £2,099; Purchase tax £1,050 17s; **Total** £3,149 17s.

Star Sapphire


PROPELLER SHAFT INTERMEDIATE BEARING
AUTOMATIC GEARBOX SELECTOR CONTROL
BORG WARNER AUTOMATIC TRANSMISSION
TWO STROMBERG DOWNDRAUGHT CARBURETTERS
REAR ENGINE GEARBOX RUBBER MOUNTING
HYDRAULIC BRAKE RESERVOIR
4 LITRE 6 CYL. 97 X 90 mm
POWERED STEERING HYDRAULIC RESERVOIR
POWERED STEERING PUMP INCORPORATED IN BELT DRIVEN GENERATOR DRIVE
BRAKE MASTER CYLINDER
UNIVERSALLY JOINTED STEERING COLUMN
BURMAN POWERED STEERING SERVO ACTUATOR
SHIMS FOR ADJUSTING CAMBER ANGLE
CRANKSHAFT DAMPER
ANTI-ROLL BAR
SINGLE POINT FRONT ENGINE RUBBER MOUNTING
TRAILING LINK I.F.S.
GIRLING SINGLE CALIPER DISC BRAKES 11·82 in dia
Autocar COPYRIGHT
J.A.MARSDEN

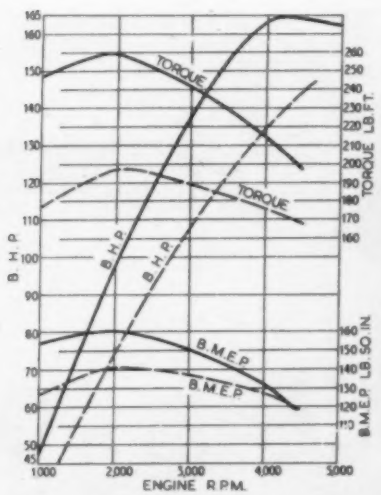
additional space for a radio; at night, a small concealed light illuminates the switch panel. In front of the driver are a large speedometer, and a matching dial containing fuel, water temperature and oil pressure gauges, and an ammeter; a clock is placed between the two dials. On the right are the usual warning lights, and the control for the screen washer. The direction flasher lever is on the right of the steering column, which has a quick-action adjustment for length.

Heating

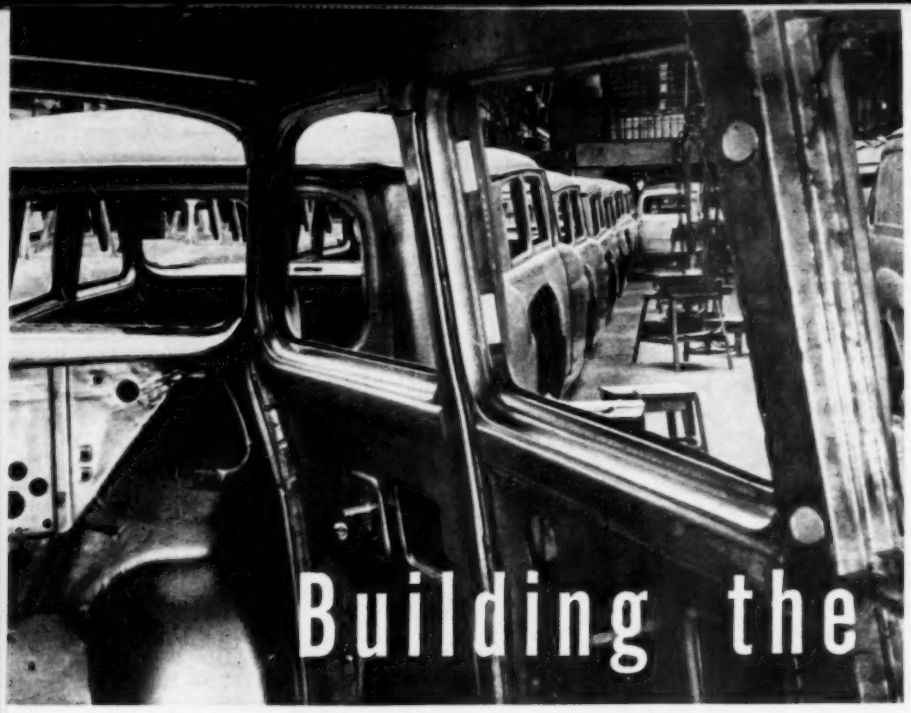
The Star Sapphire is one of the few cars to be equipped with a separate heater installation for the rear compartment; it is included in the standard specification, and is under the control of the occupants of the rear seat. The heater unit, housed in a compartment beneath the seat cushion, is of the recirculatory pattern—it draws air from the interior of the car, heats it to the required temperature and recirculates it. Exit vents are placed in the lower edge of the seat cushion and provision is made for rear window demisting by conducting warm air from the heater unit, along ducts placed behind the seat squab, to longitudinal vents which direct the air on to the window.

In the front compartment the heater is of the usual fresh-air type, with a booster fan and windscreen demisting vents.

Preliminary experience of the Star Sapphire on the road confirmed that the car has good acceleration and is capable of a high cruising speed. There is freedom from roll on corners, and immediate response to any movement of the steering wheel. The brakes are impressive, a lightly loaded pedal giving a smooth, powerful response.



Left: Gross power curves for the Star Sapphire (continuous line) and the Sapphire 346 (dotted). Below: The front wing line sweeps down to merge into the rear wheel spats. Opening quarter panes provide ventilation when the main windows are closed



Building the Bodies

PROGRESS IN AUTOMATION IN A COMPETITIVE FIELD

Standard estate car body shells approach the paint shops at Mulliners

TO the general public the display of models on coachmakers' stands of the same type as the motor manufacturers' exhibits may seem curious, even when it is realized that these body building firms have a large stake in the car makers' final product. However, just how big and important that share is at the moment has been judged in a tour, made within the last fortnight, of each of the major producers of coachwork for popular cars. These companies have their hands as full of problems as have the chassis makers, and the way in which they are tackled is fascinating to the observer, particularly in the light of what he knows of his own car's coachwork.

Although control of most coachbuilding firms has been acquired by the companies whose names label the actual cars (the notable exception is Pressed Steel of Cowley) most are steeped in a longer history, running back even to 200 years. However, following so many years of independence, and of co-operation in meeting the demands of the new-fangled motor industry, the individual atmosphere of each works remains almost unaffected by new allegiances, and co-operation remains.

One can quote an example which amounts almost to the pooling of the all-important production of press tools. While nearly all the coachbuilders make most of their own very expensive tools, they usually meet with difficulties when preparing for production of an entirely new model. They then take advantage of any spare capacity which their direct rivals may have available and, in turn, take on outside work in the quieter periods when their own production lines are running smoothly.

Between the mass production body makers and the specialist and to-order coach builders, are several other firms such as David Brown's Tickford, Ltd., at Newport Pagnell, where Aston Martins are now being built in considerable numbers, mainly by hand, and Jensen Motors, who build Austin-Healey 100s and six-cylinder Austin estate car bodies for B.M.C. on a scale approaching that of the large companies.

The pattern of post war development has been affected by national restrictions, and it is only during the last few years that major expansion schemes have been completed or well advanced. In the immediate post-war years, the need of manufacturers to grab what they could in manufacturing space and equipment has had some unhappy results in decentralization. For example, some popular convertibles have their body shells made by Pressed Steel at Cowley; these travel to Thrupp and Maberly in London for painting and trimming before beginning the final journey to the chassis manufacturers in Coventry.

Other companies have been more fortunate. On the Dagenham marshes beside the Thames, Briggs have been able to supply bodies to their parent company, Ford, with very little transport delay. When the new expansion programme is completed, line-production methods will be used from the time the first body panel leaves the giant presses, until the finished car reaches the end of one of the assembly lines now being laid. The Vauxhall body division at Luton, for many years as overcrowded as any rival, has now completed a project which, while calling for a vast total of capital expenditure, has doubled production facilities.

At British Light Steel Pressings, floor pan components rise to the multi-welding machine (left). Right: This "spaceman" is protected against poisonous fumes while completing metal filling and finishing on a Humber Super Snipe body shell

The unit construction body, in which one has, in effect, a welded box of sheet steel so strong that a separate chassis frame is not required, first appeared in the United Kingdom before the war. Not surprisingly, this came via Vauxhall from General Motors in Detroit. But since the war every other manufacturer of popular cars has adopted the Method, and its development has been a model of efficient production engineering.

Unless its progress can be followed visually, the story of body building is less interesting than those of individual items of equipment which are dramatic cornerstones of the modern production line. In most factories body panels are united by an army of men using portable welding tools shaped like crabs' claws, but one or two of the companies who produce a model in sufficient numbers to justify very high tooling costs, use a much more exciting technique. The most impressive is at Briggs, where automatic multi-welding of Consul and Zephyr bodies is extensively used. The separate pieces of the floor pan are mounted on a trolley, which is patterned with dozens of welding points. Automatically the panels are welded together, the trolley moves on and, in next to no time, the body takes shape. These operations are watched by a fraction of the number of men who would be required to complete the job with ordinary apparatus.

Giants among new machines are the latest presses, of which the most imposing array is to be seen at Luton. These machines, each weighing up to several hundred tons, stand over a basement into which falls all the scrap. This "waste" steel is automatically carried away by conveyor, crunched into oblong bales of standard size, and carried to the loading bay ready for return to the steelworks.

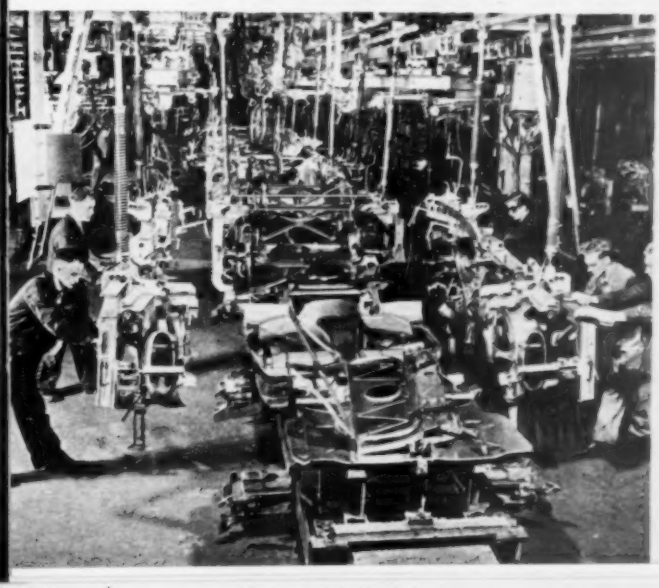
To watch a battery of these presses in action producing, perhaps, a large panel such as a Velox roof, induces the soporific effect associated with watching goldfish. One hears the crunch of steel being chopped like mint for the sauce, the clatter of scrap falling through to the basement conveyor, the hissing and puffing of compressed air powering the mechanical hands which remove panels from press to conveyor, turn them over, or place them in the next soldierly Clearing. The sounds of all these operations mingle with the motive power of the presses themselves to give a deep-chested rumble as impressive in its own setting as the sirens of the Queens in fog.

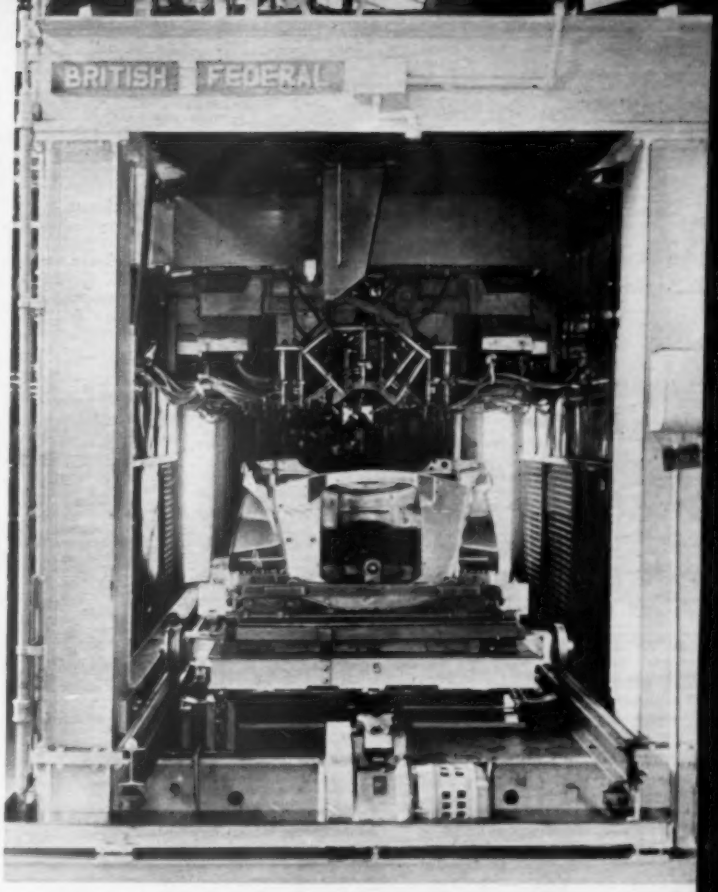
When the body shell is complete it passes on for cleaning, a protective dip or spray (usually Bonderising), a paint dip to a depth covering the main structure of the underbody, priming and in some factories sealing, the application of final colour coat, and then baking at between 300 and 400 deg F.

Most bodies are still sprayed by hand, but some large firms have successfully automated even this skilled task. The progress of the bodies through the paint booths breaks photo-electric beams, bringing into operation spraying arms which move to and fro, lifting automatically to coat roofs, and lowering again for locker lids.

In the trimming departments, craftsmanship is at a premium, yet even here more and more machinery is being introduced. For example, the ribs in leathercloth upholstery are now often made by a speedy welding process, instead of being sewn. Vauxhalls have also designed, constructed and developed a most intriguing method of trimming by vacuum. At present armrests are being covered with plastic sheet by this method. The rubber interior is covered with adhesive and placed on a jig, a sheet of plastic is pulled across, a lid descends and the plastic is separated from the roll. For a few moments the whole assembly is heated, then suction is applied which draws

Velox body sides swing to meet the floor pan at Luton. Ancillary panels are already lying on the pan ready for welding into the structure





At Briggs, Ford bodies pass through several multi-welding operations automatically. Below: This planing machine for making press tools is accurate to within 0.001in over the whole of its bed area

Fisher and Ludlow have this Roto-dip. All operations are automatic to the point at which bodies emerge in primer paint at the far end

BUILDING THE BODIES . . .

the sheet firmly round the rubber. A second operator simply clips off surplus plastic and slips the unit into the armrest frame. A great labour saving is claimed, and an extension of the process seems probable.

Briggs. The body division of the Ford company of Dagenham, this company is one of the largest and most advanced in the country. At the moment it is in a transitional period, for Ford are approaching completion of their expansion scheme which is costing more than £65,000,000. This vast project includes complete reorganization of the body division. At present the Briggs works provide completed, painted and trimmed bodies, but soon the shells will pass by conveyor to the new assembly building to be painted and trimmed there. This will permit expansion of body shell construction at Briggs.

Already new double-acting presses, with scrap taken away underfloor, have been installed, and mechanization introduced so that a sheet of steel, once delivered to the first press, passes automatically to the end of the line.

In their efforts to produce well-fitting bodies safely and at low cost, Ford put scarcely any limit on their purse in buying new tools. They shop in the world market, really accurate tooling being the most important single aspect of accurate production in quantity. The company are proud of their precision in the early stages of new model development, as exemplified by the accuracy of their B.T.H. duplicator mounted on a Gittins and Lewis horizontal borer, and of their planer and vertical miller. The bed of the planer, for example, is 20ft long, yet the total inaccuracy over the whole area is said to be not more than 0.001 in.

British Light Steel Pressings. This member of the Rootes Group produces in London body shells for the recently announced Humber Super Snipe and, of course, for the Hawk. Work includes completely knocked-down bodies for assembly in South Africa, New Zealand, Australia and Eire. The complete bodies go to Coventry for painting and trimming, where they also meet the "mechanicals."

Pressed for space, B.L.S.P. show how a gallon may be squeezed from a pint pot, and the layout of the Hawk and Snipe assembly lines is a masterpiece of planning. So, too, was the preparation. When the Hawk was introduced, the assembly lines previously devoted to Sunbeam Mark IIIs were removed and the building stripped—even the roof was removed. The mass of machinery required for the new lines, including multi-welding equipment for the complete floor pan, was installed. Time taken for the whole job, from stopping production to restarting, was 14 days. This remarkable feat is appropriate to the enthusiasm in evidence throughout the works.

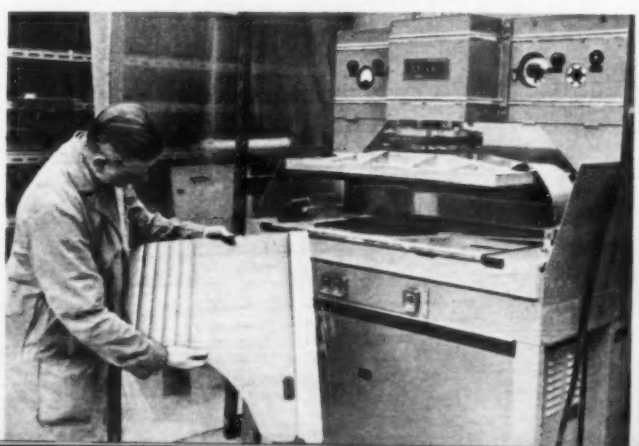
Incidentally, it is believed that the Super Snipe is the largest true unit construction body made in quantity in this country.

Carbodies. A company with a reputation for their know-how with convertible coachwork, they are at present taking the undertrays for Consul and Zephyr from Briggs, and completing drop head coachwork. Owned by the B.S.A. Group, they have long associations with the Daimler company. Few of the public, so familiar with the London taxi, realize that Carbodies are the brains behind much taxicab design; they are responsible for a most attractive new Austin cab of which a hire car version is to be displayed at the forthcoming Motor Show. It will be well worth looking at as an example of practical design.

Carbodies are another firm paying special attention to the early stages of tooling. Their mahogany, life-size models of panels, used as masters in the production of the press dies, are superbly executed and finished. Their stand décor, as in previous years, will consist of their own products ingeniously arranged round the actual models on show.

Fisher and Ludlow. In 1949 Fisher and Ludlow celebrated their centenary, 100 years after a certain Mr. Fisher went into

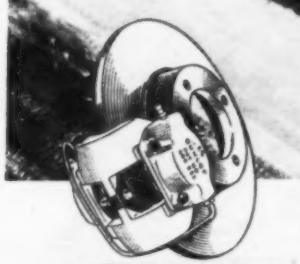
Research is of fundamental importance; this laboratory is at Fisher and Ludlow. Right: A machine welds ribs in leathercloth trim at Mulliners



And now the

JAGUAR

mark nine IX



The utmost safety at the high speeds provided by the Mark Nine is ensured by Dunlop Disc Brakes which are fitted to all four wheels.

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THE JAGUAR RANGE OF MODELS NOW COMPRISES:-

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The Mark Eight Saloon

The 3.4 Saloon

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BUILDING THE BODIES . . .

business; Ludlow came later. Now, looking round Albion Works, one can hardly picture the old scenes when production was made up of kettle necks, lids and spouts, heel protectors and other small pressings.

Today this B.M.C. company builds about 1,200 car bodies a week, including the new A.40 (in panel sets), the Metropolitan, and the small Rileys and Wolseleys. The last three are all fully trimmed and painted. Characteristic of the co-operation in this industry are fully trimmed and painted Standard Eight and Pennant saloons. (The small Standard estate cars are looked after by Mulliners.)

Some idea of the company's size may be gauged from the seven acres covered by the press shop alone. There are 450 power presses, ranging in capacity from 20 to 1,500 tons, and more than a million pressings are produced every week. Since the war, and at considerable cost, Fisher and Ludlow have installed a Roto-dip plant in which the assembled body shells, mounted on spits, are rotated through a series of baths and ovens, emerging finally in a coat of baked primer.

Mulliners. Mulliners of Birmingham, as the company is often called to avoid confusion with the specialist firm of H. J. Mulliner, was founded in 1760, and has four works giving a total floor area of more than 360,000 sq ft; the smallest of these is devoted to buses, the other three to cars. At present a development programme is in full swing and it is expected that the present total weekly output of 600 to 700 bodies will be greatly increased. Output of Triumph TRs totals about 400 each week, to which must be added the small Standard estate cars and vans. The firm was recently acquired by the Standard company.

The company had a long association with specialist coachwork; even after the last war production was concentrated initially on coachbuilt bodies in moderate numbers, while pressed steel bodies for the Standard company were being introduced. Now, pressing, assembling, painting and trimming are undertaken within the one organization. New equipment includes machines for welding seams in leathercloth upholstery, as opposed to stitching each rib individually. Mulliners have also designed and developed a new, luxury coach, introduced last month.

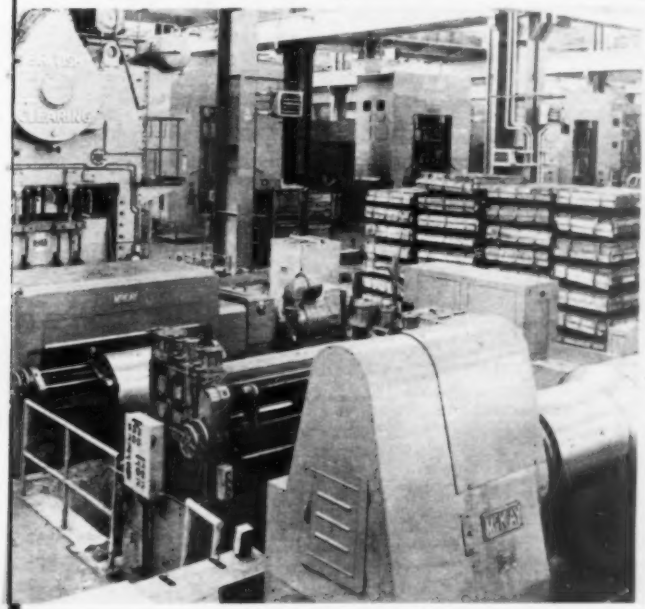
Pressed Steel. This is the only fully independent builder of mass-produced bodies in the kingdom—and one of the largest firms. A new factory has been opened at Swindon, where all the equipment is absolutely modern, but the centre of operations is at Cowley, Oxford, where most of the bodies are made. Each week sees more than 8,000 car bodies leave the assembly lines as complete units or as panel sets, in addition to Prestcold refrigerators and more than 300 railway wagons. The present development programme includes a big new factory in South Wales which, devoted to refrigerators, will considerably increase car body building facilities at headquarters.

The development of Pressed Steel is one of the success stories

(Continued on page 557)

Scrap from the presses of the Pressed Steel Company's Swindon works is taken to a baling machine by underfloor conveyor. Below: Work starts on wooden models used as patterns in making dies

Left: Steel from a roll on the McKay machine at Vauxhall passes automatically through conditioning rollers, and a speed regulating machine, to a press which incorporates an automatic guillotine. Right: Velox bumper components receive automatic polishing in part of the enormous plating shop at Luton



A small frontal area contributes to the outstanding performance: the scalloped roof panel is intriguing. (Right) Diminutive proportions of the Abarth Zagato can be gauged from those of the overtaking Austin A.30

The Autocar

Abarth Zagato 750 G.T.

ROAD TEST 1705

IT is not easy to assess the value of specialist-built cars. Whereas most articles can be estimated by their cost per unit weight or area, a car often eludes such comparisons, particularly if its performance is outstanding; perhaps it can best be likened to a suit of clothes. In these days the majority of people are clothed in garments produced to a set range of designs and patterns in mass production factories, and in most cases their needs are adequately satisfied; but there is still a minority who derive pleasure from the exclusive cloth and cut which can be provided only by the personal tailor—albeit at considerably greater cost. It is indeed fortunate that there is still sufficient wealth in the world to permit this expression of individual taste.

The Abarth Zagato 750 is in the hand-tailored class, for it is built in comparatively small numbers and, at least as far as the U.K. is concerned, it is quite expensive; but it has outstanding performance for its size, and is very economical. The car tested was supplied by Anthony Crook Motors, Ltd., of Hersham, Surrey, who are the sole concessionaires for the U.K. It was a left-hand drive model, but right-hand drive can be supplied without extra cost.

Carl Abarth, after whom the company is named, is an Austrian engineer who worked with Dr. Porsche on the design of the Cisitalia racing car, and so understands the requirements of high performance; when that project was abandoned he remained in Italy and set up his own establishment in Turin. Initially he marketed performance kits, mainly for Fiat cars, and from this gradually built up an organization to produce his own cars, which are still based on Fiat engine and chassis components, but fitted with Zagato bodies to his own design.

The Zagato 750 is derived from the Fiat 600, and uses the same platform-type frame, suspension and steering with little change other than modifications to spring rates and damper settings. The brakes are the same size, but harder linings are fitted.

Considerable changes have been made to the engine, though the same cylinder block and auxiliary drives are used. The capacity has been raised from 633 c.c. to 747 c.c. by increasing the bore diameter from 60 mm to 61 mm and installing a stiffer crankshaft incorporating balance weights, with 4 mm longer stroke. The cylinder head is modified in the combustion chamber, port diameters are increased and new inlet and exhaust valves of increased diameter are fitted. The compression ratio is raised to 9.8 to 1 by the fitting of special pistons, which are mounted on gudgeon pins of larger diameter, but the original connecting rods are retained. The standard Fiat 600 camshaft is replaced by one providing higher valve lift, a greater degree of overlap and longer opening period. A lightened flywheel is fitted and the bronze spiral gears for driving the oil pump and distributor are replaced by steel gears. These modifications raise the power output from the 23 b.h.p. at 4,600 r.p.m. of the Fiat 600, to 44 b.h.p. at 6,000 r.p.m. in the revised version. To cater for these higher torques and powers, the clutch is fitted with stronger springs. The rear axle gearing is raised to 4.33 to 1 by the fitting of a new 9:39 crown wheel and pinion gear set in the final drive.

A remarkable feature of the engine is the extreme smoothness throughout its operating range. When taking performance figures the limit was set at 6.400 r.p.m., but the recommended normal usable maximum on the road is 6,200 r.p.m. in the gears. Even at the higher speeds used, there was no evidence of valve bounce; in fact there was no more fuss at 6,200 than at 3,000 r.p.m. Naturally such an engine thrives on plenty of revs, but throughout its range it remained smooth and tractable. In top gear a clean pull away from 17 m.p.h. could be obtained, but it was found that 26-27 m.p.h. was the normal speed at which third gear was selected in traffic. The exhaust note is crisp, but not such that it would disturb residents in a built-up area.

On main road hills the car was a veritable weasel if full use was made of the intermediate gears, when storming climbs could be made; and yet at all times it had the manners of a lamb. When accelerating it was necessary always to keep a weather eye on the rev counter, for at maximum permissible engine speeds there still seemed plenty of power to come, and the safe limit could be easily exceeded.

During performance testing the car was run continuously for 10 laps at maximum speed on a banked circuit and at

The car is very low-built, but entry is easy and vision first class. The louvres in the rear engine bonnet are for entry of cooling air. (Right) The forward compartment is very nearly filled by the extra large fuel tank of the test car, the very accessible battery, the spare wheel and screen-wash reservoir

no time did the water temperature rise above 180deg F. or the oil drop below its normal operating pressure of 60 lb sq in. The air temperature at the time was between 68 and 70deg F., and at the end there was no tendency for the engine to run-on. The performance figures are really outstanding, for there are not many cars, even with more than twice the engine capacity of the Abarth, which could achieve a standing quarter-mile in 20sec, or reach 60 m.p.h. from a standing start in 15.8sec. Some distance is needed to wind up the car to its maximum speed of 95 m.p.h., but it quickly reaches a cruising speed of 80 m.p.h.—corresponding to just over 5,000 engine r.p.m.—at which the engine seems particularly happy.

Allied to its performance is equally outstanding fuel economy, an indication of the efficiency of the engine and the form of the body. Overall fuel consumption for 1,140 miles was 42.6 m.p.g. Even when the car was driven very hard, using the maximum performance in the gears, the consumption did not drop below 40 m.p.g., and if economy is sought it is possible to exceed 50 m.p.g. Allowing for the extra cost of super premium petrol which was used during the test, this is very economical. On one occasion during a late night drive it was necessary to put in the tank some premium fuel, which resulted in a 50/50 mixture of premium and super premium. With this mixture there was no detonation, nor was there running-on when the engine was switched off.

Clutch take-up was smooth, with a light pedal pressure, and during the arduous standing starts when performance figures were taken, no slip was experienced. First, second and third gear ratios are ideally chosen, but the gap from third to top is rather wide, so that changing up from third to top at 6,200 r.p.m. brought engine revs down to about 4,000 r.p.m., which was rather low in the power curve; a five-speed gear box would be an added benefit. Synchromesh is provided on the upper three ratios, and although it could be beaten with a snatch-through change, the resulting clash was never vicious. Practice was needed to obtain a clean change-down from second to first gear at high engine revs.

Steering is wonderfully light and precise at all times, and the car could be placed to an inch even on bad road surfaces; there was no kick-back from the road wheels. The number of turns from lock to lock could be reduced from three to two without making the steering heavy, and it would be an advantage for quick recovery in fast driving. When the car was cornered to the limit of adhesion on a dry surface, all four wheels would break away almost together, though very slightly earlier at the rear—a balance which most fast drivers prefer; a quick flick of the steering wheel would restore stability. In the wet a little care is needed, for the back breaks away rather sharply and quick corrective action is required. The car had unexpectedly fine directional stability on the straight, and although no high cross winds were experienced, gusts between buildings seemed to have no effect on maintaining a straight course.

The suspension is surprisingly soft and comfortable, and the car would take comparatively rough surfaces in the manner of a much larger saloon. Over undulating surfaces there was some pitch, but this became annoying only at night when the head lamp beams tilted up and down in sympathy; even in such conditions the car was always stable, and no effect on the precision of the steering could be detected. On rough surfaces many cars fitted with a swing axle type of suspension suffer from excessive roll, and the rear wheels have a "chopping" action round corners; there was little suggestion of either of these traits with the Abarth. Briefly, the car is much faster round a corner than most drivers would dare to discover.

Because of the car's minute proportions and good acceleration, full advantage can be taken of very small gaps in traffic streams, when the precision of the finger-light steering is, perhaps, most appreciated. Care was needed when following larger cars, for it was not easy to see ahead by reason of the low seating position and, furthermore, the Abarth was below the field of vision of most rear view

(Left) A considerable amount of luggage can be carried on the rear platform, and there are straps to secure it in position. There is also room for soft baggage behind the fabric curtain which encloses the small compartment above the transmission. (Right) There is plenty of space in the passenger compartment; the seats, which have a wide range of adjustment, are firmly upholstered and have ventilating slots in the cushions and squabs

It looks what it is, a real Gran Turismo car in miniature. The louvres at the extremity of each side window are for ventilation purposes

Abarth Zagato 750 G.T. . . .

mirrors; thus its presence was not always noticed by drivers of other vehicles.

Fairly heavy brake pressure was required for stopping from the higher speeds; after applications from about 80 m.p.h. at frequent intervals, when the brakes reached a fairly high temperature, there was a pronounced vibratory rumbling from the front brakes, but on further application one could pass through this effect, and at all times the vehicle pulled up all square. This roughness may have been caused by slight drum spotting, resulting from the use of hard linings which had not been thoroughly bedded in. There was a pronounced squeal on the front tyres if the brakes were applied hard on slight steering lock, indicating that the balance of braking was too heavily loaded on the front wheels.

Entry into the driving or passenger seat is easy for such a small car, and when seated behind the wheel the driver at once feels at home, though more elbow room on the door side would be welcome. There is sufficient adjustment of the seats to suit even the long-legged driver, and although the car may look a little beetle-browed from the outside, there is little feeling of this, or difficulty with vision from within. The seats are firmly upholstered, and are first class; side frames from the bucket to the back squabs are placed at an angle so that they give adequate support to the thighs, but do not interfere with elbow movement. Equally important, the seats are mounted on very rigid frames which do not sway during cornering.

Between the two seats is the backbone tunnel of the platform chassis. Mounted on it is the vertical central lever for the gear change, and just behind this, as in the normal Fiat 600, are two pull-up levers which can be operated simultaneously with the left hand for choke and starter. Behind them is the short, pull-up hand brake lever which operates on the transmission. It is rigid and effective in use, being able to hold the car fully laden on a 1 in 3 hill; on this gradient the car was unable to get away with two people, but just managed it with the driver only aboard, and the engine given plenty of throttle.

The inside is trimmed throughout in black leather cloth, the same material being used for the pleated roof lining. Above the heads of the driver and passenger is a scalloped form of roof, which not only adds a styling effect to mate with the cooling louvres and air entry into the rear engine, but adds to the internal head room. It would be better if the windscreen cantrail and this roof panel over the passengers' heads were padded with an absorbent underlay.

Source of the quite startling performance; the engine used 3 pints of oil during 1,140 test miles. A ribbed sump is seen beneath the number plate

The 16in diameter, three-spoked steering wheel is of duralumin, with a thin wooden rim. Beneath the wheel on the left-hand side are two levers, a short upper one for the turn indicators and a lower one for all lamp positions. The switching order is off, side, head, dip; it would be better if dip were between side and main beam. As the lower lever is sprung towards the steering wheel, the head lights are flashed.

On a raised, cowled panel formed in light gauge metal with a matt finish—as indeed is all the facia—three 4½in dia instruments confront the driver. In the middle is the rev counter; on the right the speedometer with trip and total distance indication; the left dial has three segments for coolant temperature, oil pressure and fuel contents. The oil pressure gauge is not easy to read, being masked by one of the steering wheel spokes in the straight-ahead position. Incorporated on the fuel contents gauge is a flashing light which indicates when the level is approaching the reserve—this being about two gallons. In the centre of the facia are three telltale indicator lights; each has a Perspex cover, which when turned adjusts the intensity of the light to suit the driver and conditions. The one nearest the driver is coloured red for the turn indicators, the second one green for the side lights, and the third, blue, lights up when the head lamps are dipped.

There are only three switches on the facia. The ignition switch, turned to the right, brings in the ignition circuit, but turned to the left it permits operation of the auxiliaries, when the key can be withdrawn leaving side lights in circuit; the second switch in this group is for the panel light, and the third for the wipers. The wiper blades cover a good area of the screen.

The frameless window in each door is curved to match up with the body contour; it winds out of sight. Above each window is a narrow draught deflector in transparent plastic; this is very effective, and on a rainy day the windows can be opened appreciably without letting water in. At speed these deflectors cause a slight whistle, but this can be overcome by opening the windows an inch or so, and in this condition there is no draught; moreover, there is no draught with one of the windows wound down fully.

With the door windows closed, ventilation can be obtained by opening small extractor flaps at the rear of the fixed side windows. Heating is by standard Fiat 600 equipment via hot air ducting from the rear engine, controlled by a flap at the back end of the floor tunnel. There are controls at the front of this tunnel—one on each side—for distribution of air at floor level to either occupant. When these flaps are closed all the air is directed through two louvres at the base of the screen. At low speeds the efficiency of the heating system is not high, but at over 40 m.p.h. the ram effect boosts the air flow and the screen is effectively demisted. An advantage of the rear engine layout is that the heat rising from it quickly demists the rear window.

The pedals are reasonably well spaced, and although there is not room to rest the foot beside the clutch pedal the spring strength is sufficient to support the foot without fatigue or risk of clutch slip. A useful fitment is a pull-out hand throttle control under the scuttle, just above the fuse box. It is required frequently to increase the idling speed during the warming-up period.

Nothing could be more accessible than the rear engine compartment. The lid is held open by a single stay, and one can reach everything above sump level and around the sides without difficulty.

There is little luggage space in the front bonnet compartment, but room could be found for a small, soft bag. Most of the space is taken up by the large capacity fuel tank; this has the theoretical advantage of evening out weight distribution when full—although the quantity of its contents does not apparently affect the car's handling. Through the large filling orifice on top of the tank the fuel level can easily be seen, and there is no blow-back on refuelling. The spare wheel nestles in a near-vertical position in the nose of the front compartment, and below it is a well-equipped tool roll, jack and wheel brace, but not a starting handle.

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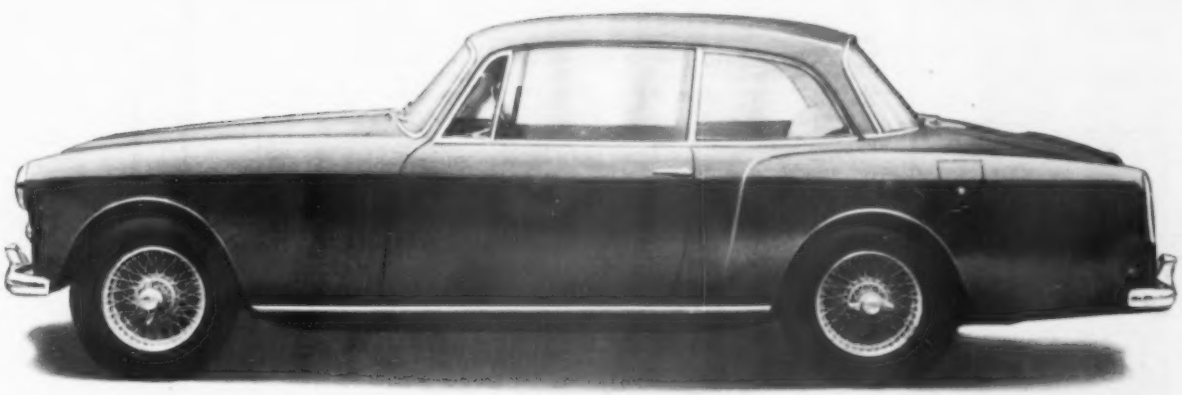

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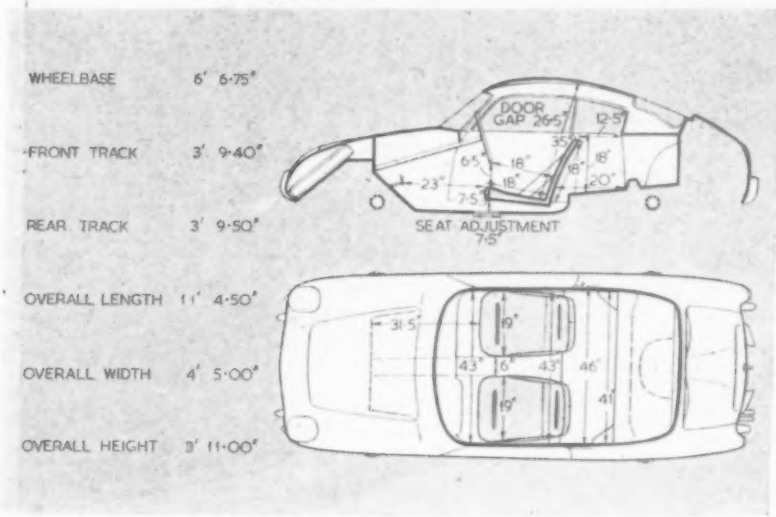
Abarth Zagato 750 G.T. . . .

Dummy knock-off wheel rims are standard equipment, but in a car of this character which requires no embellishment, such false adornment seems unnecessary.

In brief, the Abarth is a gem which not only gives the driver an enormous amount of fun and pleasure, but is extremely safe and comfortable, and has a performance that belies its size—though not its shape. For two persons it is also equipped with sufficient covered luggage space to make it suitable for rapid and economical long-distance touring. It is relaxing to drive, and the noise level from the rear engine is not unduly high. During a road test of around 1,000 miles it is not possible to assess how much the extra performance obtained from an otherwise moderately rated engine will affect reliability. The power unit retained its tune throughout this test, and it is known that similar cars have been very successful in the punishing conditions of Continental rallies and long-distance races like the Mille Miglia. With the recently announced twin camshaft Abarth Fiat engine the performance—a maximum speed of 110 m.p.h. is claimed—should be startling.

ABARTH ZAGATO 750 G.T.



Scale ¼in to 1ft. Driving seat in central position. Seat cushions uncompressed

PERFORMANCE

ACCELERATION:

Speed Range, Gear Ratios and Time in sec.

M.P.H.	4.07 to 1	6.05 to 1	9.32 to 1	15.40 to 1
10—30	—	—	5.3	—
20—40	16.6	8.4	5.2	—
30—50	15.4	8.2	—	—
40—60	15.0	8.7	—	—
50—70	17.4	—	—	—
60—80	21.4	—	—	—

From rest through gears to:

M.P.H.	sec
30	5.0
40	7.6
50	11.0
60	15.8
70	22.2
80	33.8

Standing quarter mile, 20.0 sec.

MAXIMUM SPEEDS ON GEARS:

Gear		M.P.H.	K.P.H.
Top	(mean)	95.4	153.5
	(best)	96.5	156.2
3rd	at 6,200 r.p.m.	64	103
2nd		40	64
1st		25	40

TRACTIVE EFFORT:

	Pull lb per ton	Equivalent gradient
Top	156	1 in 14.5
Third	240	1 in 9.3
Second	410	1 in 5.4

BRAKES (at 30 m.p.h. in neutral):

Pedal load in lb	Retardation	Equivalent stopping distance in ft
25	0.18g	165
50	0.49g	62
75	0.79g	38.2
85	0.90g	33.6

FUEL CONSUMPTION:

M.P.G. at steady speeds

M.P.H.	Top
30	98.0
40	83.4
50	70.1
60	58.0
70	48.4
80	41.2
90	37.1

Overall fuel consumption for 1,140 miles, 42.6 m.p.g. (6.6 litres per 100 km).

Approximate normal range 40–53 m.p.g. (7.1–5.3 litres per 100 km).

Fuel: Super Premium.

TEST CONDITIONS: Weather: dry, no wind.

Air temperature, 68 deg. F.

Acceleration figures are the mean of several runs in opposite directions.

Tractive effort obtained by Tapley meter.

SPEEDOMETER CORRECTION: M.P.H.

Car speedometer:	10	20	30	40	50	60	70	80	90	100
True speed:	9.5	19	28	38	47.5	57	67	77	87	96

DATA

PRICE (basic), with 2-seate coupé body, **£1,498.**
British purchase tax, **£750 7s.**
Total (in Great Britain), **£2,248 7s.**
Extras: 8 gallons fuel tank **£10.**

ENGINE: Capacity, 747 c.c. (45.5 cu in).
Number of cylinders, 4.
Bore and stroke: 61 × 64 mm. (2.40 × 2.52in).
Valve gear: O.H.V., push rods and rockers.
Compression ratio: 9.8 to 1.
B.H.P.: 44 at 6,000 r.p.m. B.H.P. per ton laden 63.)
Torque: 36 lb ft at 3,500 r.p.m.
M.P.H. per 1,000 r.p.m. in top gear, 15.6.

WEIGHT: (With 3 gals fuel), 11 cw (1,232 lb).
Weight distribution (per cent): F, 39; R, 61.
Laden as tested: 14 cwt (1,568 lb).
Lb per c.c. (laden): 2.1.

BRAKES: Type, Fiat-Baldwin.
Method of operation: Hydraulic.
Drum dimensions: F, 7.3in diameter; 1.2in wide. R, 7.3in diameter; 1.2in wide.
Lining area: F, 35 sq in; R, 35 sq in (100 sq in per ton laden).

TYRES: 5.20—12in Michelin Super-Comfort.
Pressures (lb sq in): F, 22; R, 24 (normal). F, 24; R, 26 (fast driving).

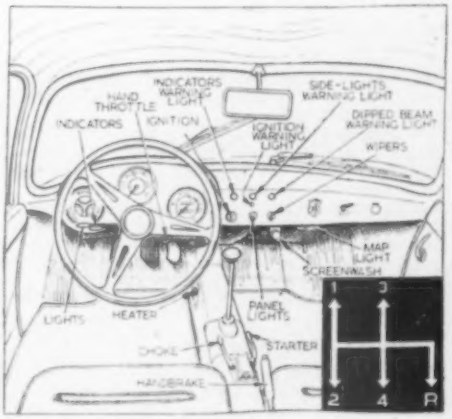
TANK CAPACITY: 6 Imperial gallons (standard). 8 gallons optionally available.
Oil sump: 7 pints.
Cooling system: 8 pints.

STEERING: Turning circle:
Between kerbs, 30ft 0in
Between walls, 31ft 6in } Left and right
Turns of steering wheel from lock to lock 3.

DIMENSIONS: Wheelbase, 6ft 6.75in.
Track: F, 3ft 9.4in; R 3ft 9.5in.
Length (overall): 11ft 4.5in.
Width: 4ft. 5in.
Height: 3ft 11in.
Ground clearance 6.3in.

ELECTRICAL SYSTEM: 12-volt; 28 ampère-hour battery.
Head lights: Double dip; 48-48 watt bulbs.

SUSPENSION: Front, Independent, wishbones and transverse leaf spring. Rear, Independent, swing axles and coil springs.



Correspondence

ITALIAN police admire the lines of a 3.4 Jaguar as it halts near the foot of the Giovo Pass, on the way to Merano

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Too Little . . . Too Much

Idiosyncracies of Lighting. I am in complete agreement with Mr. Barton (26 September) whose suggestions in regard to earlier lighting-up are as sensible as they are, on the basis of road safety alone, essential.

Whilst considering the question of the "electricity saver," may we not also seek a solution to the problem created by his opposite number, the man who sits on your tail with head lights on, often in well-lit roads, causing annoyance, retaliation and consequently increasing danger. He refuses point-blank to overtake you, preferring instead to sit and admire your floodlit rear end, and wonder why you drive with one hand covering your mirror! Can anyone suggest a remedy, other than a rear-gunner to shoot his lights out?

Lydiate, Lancashire. W. R. HOUGHTON.

Bumpers That Won't

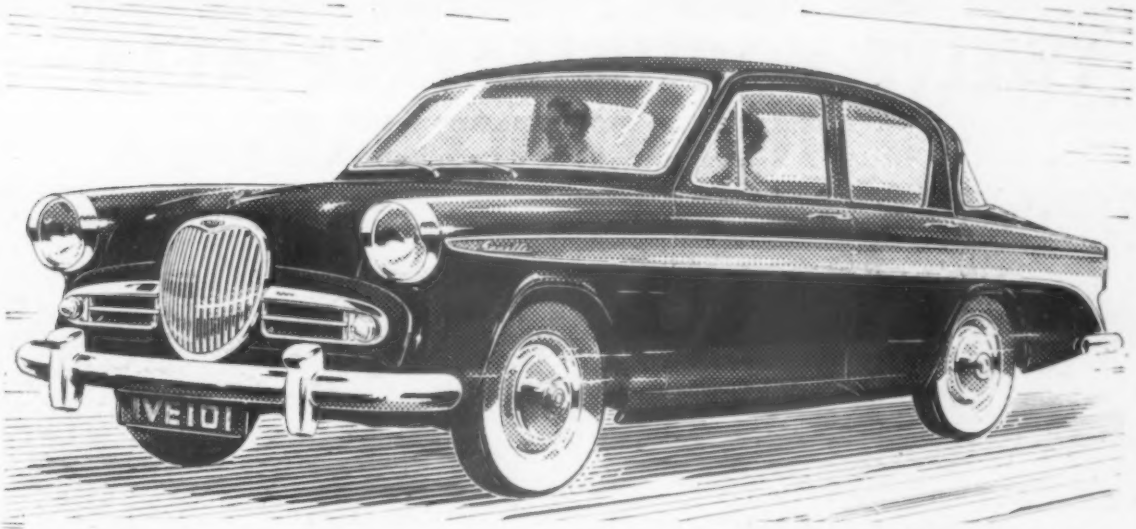
"Very Expensive Ornamentation." It is entirely beyond our comprehension that in these days of standardization British motor manufacturers have yet to realize that car bumpers no longer offer any protection. Why are the heights of this essential item of modern day motoring so varied? The situation at the present time is absolutely ridiculous; even different models from the same manufacturer have varying heights. And what use are bumpers and overriders which cause excessive damage to body-work even when impact is slight?

The only possible explanation that we can see is that it is beyond the capabilities of the stylist to make a reasonable looking job by standardizing these levels—which comes back to the fact that at the moment we are carrying around with us some very expensive ornamentation.

Wembley, Middlesex. L. A. HARRIS and S. G. ANDERSON.

Heater Care

Remedy for Blocked Tubes. Within the last two weeks, three of my friends have mentioned to me that the heaters in their cars were not working as efficiently as when new. In each case the cure was the same. Disconnect the two hoses from the heater (inlet and outlet) at the engine. Connect the nozzle of



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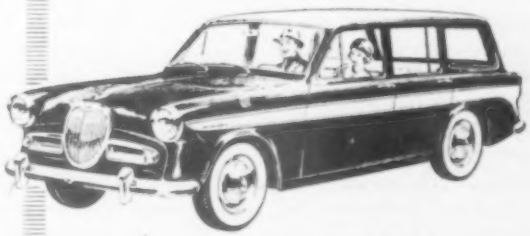

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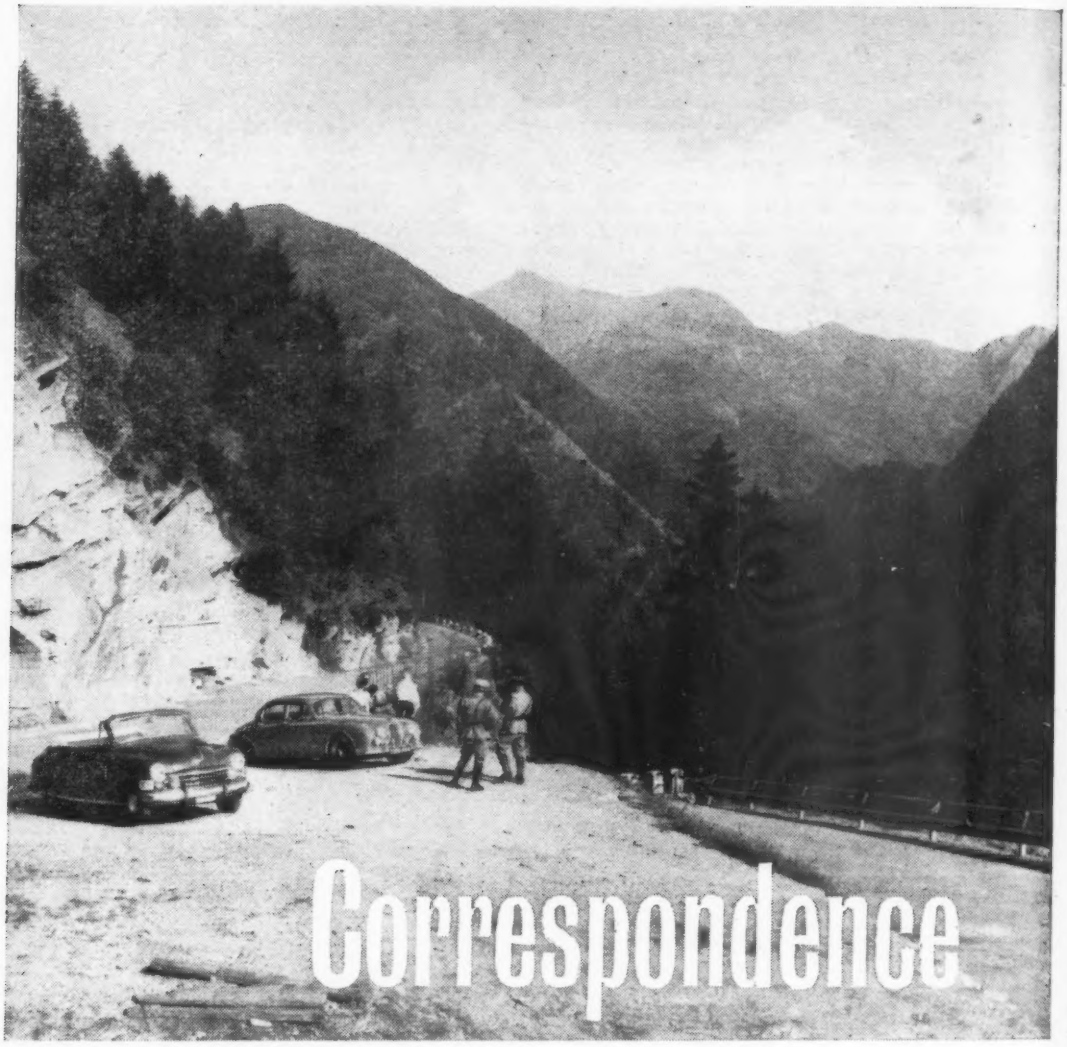

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Remedy for Blocked Tubes. Within the last two weeks, three of my friends have mentioned to me that the heaters in their cars were not working as efficiently as when new. In each case the cure was the same. Disconnect the two hoses from the heater (inlet and outlet) at the engine. Connect the nozzle of

Correspondence

a garden hose to whichever end is most conveniently placed, and run the hose until the water is discharging clear. Then reconnect the top end first, start the car and when all the air has been cleared from the heater and water alone is flowing out through the bottom end, reconnect that (avoiding amputation of arm at the wrist by the fan blades). In one of the cases mentioned, it was a full ten minutes before the water was clear; the heater had hardly functioned at all. In my opinion it would be as well to do this operation at least once a year, since the routine flushing of the radiator will not flush the heater.

In the rare cases where this does not effect a cure, it is usually found that the thermostat is at fault and requires renewing.

Tetbury, Gloucestershire. JOHN N. H. ANDREWS.

[In flushing the heater it would be better, where possible, to apply the mains water flow to the lower connection, so providing reverse flushing of the heater radiator.—ED.]

Double White Lines

"Planners Add Fiddly Bits of Their Own." Double white lines are now apparent on one of the main Glamorgan roads and they are as disorganized as those observed by Peugeot 403 (26 September). If our "planners" think the Continental system is worthy of adoption (and it certainly is) then why on earth do they add fiddly bits of their own which render the system completely useless? We are now invited to pass on the most dangerous curves. The passing lengths are so short that by the time one vehicle is abreast of another the solid line begins again. The lines are an advance on that most dangerous three-lane system, but there are not nearly enough No Passing zones.

Bridgend, Glamorgan. J. RICHARDS.

Filming on the Windscreen

Detergents the Answer? I am convinced in my own mind that filming on screens is mainly due to deposits from diesel exhausts. On many occasions I have driven my car through a cloud of diesel fumes, and observed new streaks of film immediately afterwards. Silicone cleaning products will also cause filming, but one is not forced to use them. The manufacturer of one glass-cleaning product warns users that the product is not suitable for use on car windscreens, for this very reason.

Over the past few years I have conducted numerous experiments in order to remove the diesel film from screens. Severe filming can be removed by using Swarfega, which is a hand-cleaning jelly; this should be applied to the screen as a jelly and cleaned off with a Kleenex tissue.

Of the detergents, Surf is by far the best; if the screen be cleaned with a solution of it once a week and cleaned with a wet chamois leather daily it will remain clear of film. It is most important that the daily cleaning be carried out in dry weather, because the film is deposited on the screen regardless of weather conditions. No other solvents or detergents appear to be as effective as those mentioned above. If absolutely stuck, the filmed screen should be rubbed over with a soft dry cloth.

Bridgend, Glamorgan. JOHN RICHARDS.

And Pedal-wheel Dimension. I was quite surprised to find that you are still puzzled regarding "greasiness" of windscreens. We are all bothered by this, and in my opinion it is nothing less than traffic film. In the old days of vertical screens and cellulose bodywork we cleaned and polished our cars with a mildly abrasive car polish; this removed the film from the car, and also from the screen. With the advent of synthetic finishes nearly everyone uses wax polishes and, consequently, screens do not get this mildly abrasive cleaning. Furthermore the sloping windscreen probably attracts more heat from the sun and this tends to bake it on the screen. I find that screens are best cleaned with an old-time cellulose polish which I believe contains whitening. A vigorous cleaning with Karpol (blue can) seems to do the trick, but requires doing every week.

I was interested to read the letter from Rev. G. Jager (26 September) regarding the lack of leg room in modern cars; I would advise him, the next time he is in Birmingham, to hurl the brick which he uses through the design office window. What a shocking thing to contemplate—the necessity to use a brick to enable him to drive a car costing some £700. I drive a leading make of car, renowned for roominess, but my right knee fouls the steering wheel when I apply the brake. I complained to the manufacturers, who assured me that they had never received complaints regarding this; since then I have tried a large number of new cars and they just will not accommodate a 24-inch leg under the steering wheel. Incidentally, this is a vital statistic which you omit from your road test reports.

Once upon a time the driver was the important man in a car, and he was catered for accordingly. Nowadays he is compelled to assume a "trussed chicken" position, and apply his clutch and brake pedals from the outside edges, rather in the manner of a man playing a mighty Wurlitzer organ. I shall continue my hunt for a car with 26in clearance or more between top of brake pedal and underside of steering wheel; if anyone knows of such a one I would like to hear about it.

Stanmore, Middlesex. A. SMITH.

Road Signs

Three-Fold Complaint. Your correspondent W. Blanchard (22 August) mentioned some inconsistencies in road signs; I would like to follow up those comments by asking on whose authority some signposts at road junctions and crossings have been removed altogether, presumably with the idea that the advance warning sign is sufficient? I have noticed four or five cases of this during the last few months; next time I shall note the place and tackle the county authority responsible.

Clearly such an arrangement is most undesirable, for one may not easily memorise a complicated advance indicator or even a simple one if attention is diverted by other traffic, and to have to stop and walk back is both annoying and likely to impede the smooth flow of traffic at busy places.

Also, on A5 where it passes the Hillmorton radio station near Rugby, there is a medium bend which admittedly is dangerous because traffic is fast along that stretch of road, and accidents have occurred; but to erect a sign which, by its shape, indicates almost a hairpin bend is not only misleading but liable to cause motorists to doubt the veracity of other signs. This I am taking up with the authority concerned.

Finally, why must we continue to be met with that silly order of words indicating a lay-by some distance ahead—by quoting the distance first, as if that were the more important? Nowhere else do we put the mileage first and the name of a town after it, so why do so on the lay-by sign?

Rugby, Warwickshire. S. P. HASTINGS.

Money Well Spent

What of Bentley in Britain? With reference to A. J. A. S.'s letter (22 August) under the heading of "Money well spent," it was most interesting to read a post-war Bentley owner's experiences over a period of 11 years with a total mileage of 150,000 miles around Cape Town. Can we have reports of similar experiences of these cars in this country from the proud owners of these fine cars?

Chobham, Surrey. G. E. T. PENNYFATHER.

Windscreen Washer

What of the Air-Flow? Col. Galloway (19 September) suggests the replacement of the conventional windscreen-washer jets by "a low-pressure, wide-aperture system delivering water through holes in the roof immediately above the screen and vertically over each wiper." Although he obviously doesn't mean quite this, one gets the idea. A good idea, too, provided that (at speeds over 10 m.p.h.) it's the *rear* window one wants to wash. . . . Why not—to reduce the thing *ad absurdum*—a flow of water carried along the windscreen wiper blades and emerging through little holes in them?

Sheffield, 8. R. L. GORDON.

Driving Methods

That Slipping Clutch An acquaintance is receiving driving lessons from a local school of motoring. One lesson involved approaching a major road by way of a minor road having a considerable rising gradient. The exercise was repeated five times. The instructor forbade the use of the hand-brake, the approved drill being to maintain position on the hill by selecting first gear and using the clutch. This the learner found difficult to do, but when she suggested use of the brake she was told the official examiner would require the gear and clutch method during her forthcoming test!

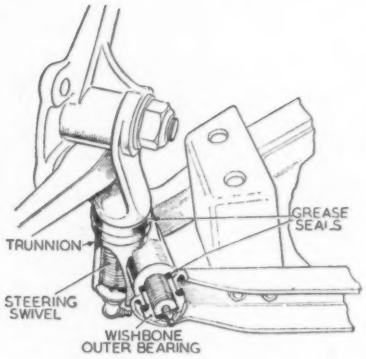
Similar methods—i.e., in gear, clutch out, brake off—had previously been taught when halted at traffic lights

Before revising the driving habits of nearly 40 years in the light of the above, perhaps readers would care to comment.

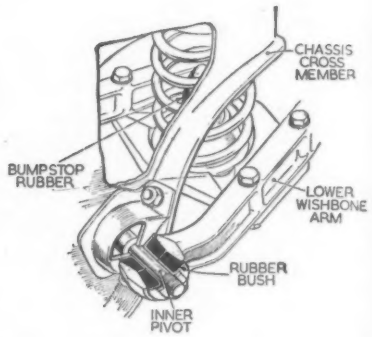
Romford, Essex. G. R. INSHAW.

SUSPENSION DEVELOPMENTS

This trunnion assembly at the outer end of a lower wishbone has screw thread bearings, and provides for both suspension and steering movement



(Right) An application of a rubber bush to a wishbone inner pivot. The shape is conical to prevent endwise flexibility



SINCE the last war, automobile suspension has shown steady improvement. Independent front springing was already being adopted by most manufacturers during the nineteen-thirties, not always with sufficient understanding of the importance of chassis rigidity which such a system requires, nor of the effect of suspension geometry on the handling characteristics of a car.

Such problems began to be tackled rather more scientifically in the post-war period; the trend to chassisless construction helped from the rigidity aspect, and growing knowledge of the exact behaviour of a car as it rides the bumps or is steered through a corner, was being applied to suspension designs.

The "relentless forward march" of engine position to increase passenger space and bring the rear-seat passengers into a more favourable place well ahead of the rear axle, applied an ever-increasing proportion of the total weight of the car to the front wheels. This, in turn, allowed front spring frequencies to be reduced (softer springing), and produced a more level, pitch-free ride. Softer springing required more effective dampers to check the greater suspension movements.

Front suspension design has become resolved into a stereotyped pattern—a pair of wishbones to control wheel movement, and a helical coil for the spring; less commonly a longitudinal torsion bar is used. This arrangement has come about largely because of the need for a clear space between the two suspension units; a transverse leaf spring or torsion bar would restrict engine room. Wishbones are of unequal length, top and bottom, to raise the roll centre above road level and improve resistance to cornering roll.

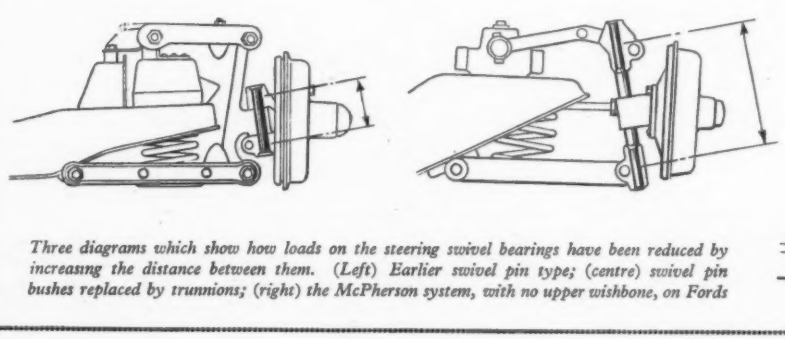
Joints in an independent suspension, especially those that require routine greasing and are likely to be neglected, need to be as lightly loaded as possible if rapid wear, heavy steering and inefficient springing are to be avoided. Three diagrams on this page show how progress has been made in this direction. A bushed stub axle, rotating on a swivel pin for steering movement, is a relic of the beam axle days, and is being replaced by designs with widely spaced trunnions or ball joints at the outer ends of each wishbone, which serve the same purpose but bear a greatly reduced load.

Taken a stage further, the McPherson system, which dispenses with an upper wishbone, has all the loads—car weight, suspension movement, cornering and braking—applied even farther apart at opposite ends of a long pillar, in which is embodied the coil spring and damper, and which rotates as a whole for steering movements.

Variety is still to be seen in the means of providing for both steering and suspension movements in the joints at the outer ends of each wishbone. Trunnions are one method—an example with screw-thread bearings is illustrated—which give a large bearing area in a small space. Car weight on the front wheel is supported by the threads on the steering swivel, which does away with a separate, heavily loaded thrust washer. A ball joint when fitted at the outer end of each wishbone is, in effect, a single, dual purpose joint. Such suspension joints need lubrication (excepting some ball joints with a non-metallic socket), and should be compared with the bonded flexible rubber bush, often fitted at the inner ends of a wishbone, which requires no greasing. Rubber does, however, deteriorate, and may need replacement during the life of the car. Movements of the wishbone deform the rubber in shear, so that there are no sliding surfaces to wear. Rubber is applied also to rear spring shackles and some steering joints, and serves also to insulate the body-chassis from road wheel noise.

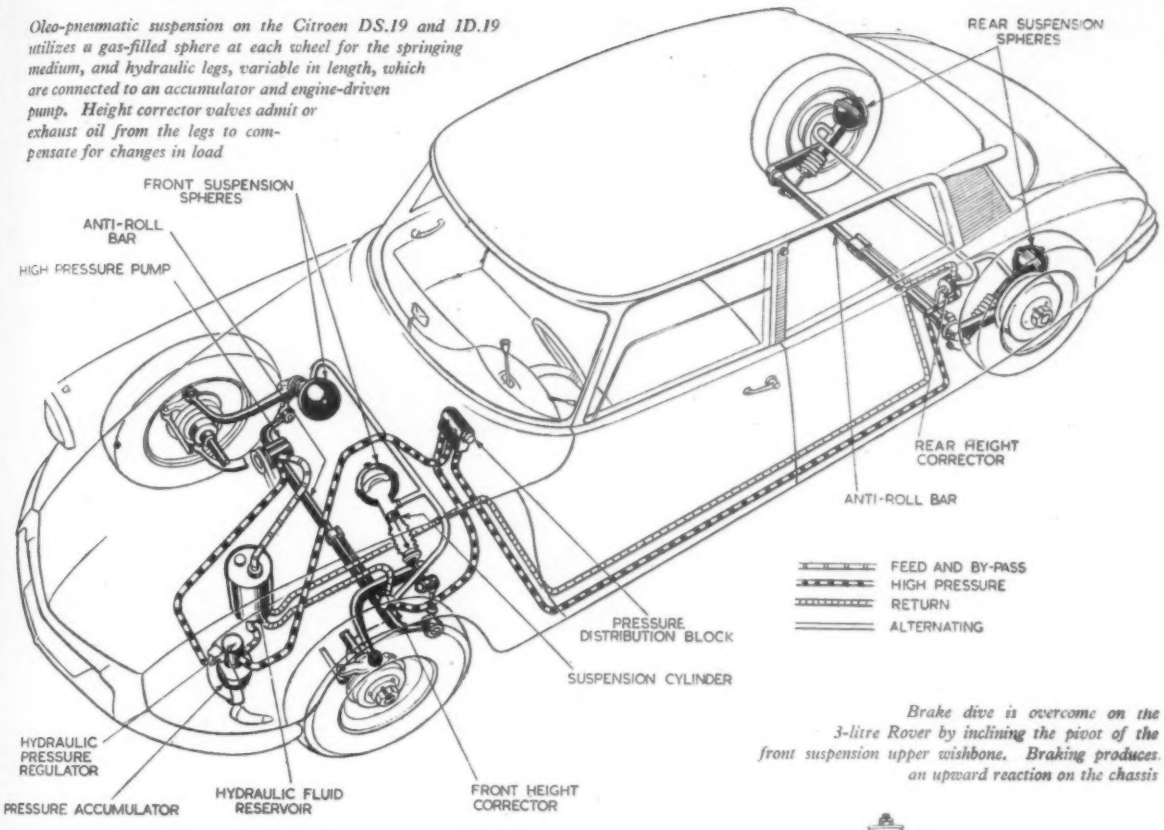
But rubber cannot be used everywhere, because of unwanted flexibility where accurate location is important. Rover, on the front suspension of their new 3-litre model, have eliminated greasing by using sealed joints where rubber is impractical. Each suspension ball joint is packed with grease on assembly, and thorough gaitering of the joint ensures that this grease is retained and water and dirt are excluded.

Insulation of the car from vibrations produced by the road wheels and suspension movements is a difficult matter with cars having integral body and chassis construction. Such a structure



Three diagrams which show how loads on the steering swivel bearings have been reduced by increasing the distance between them. (Left) Earlier swivel pin type; (centre) swivel pin bushes replaced by trunnions; (right) the McPherson system, with no upper wishbone, on Fords

Oleo-pneumatic suspension on the Citroen DS.19 and ID.19 utilizes a gas-filled sphere at each wheel for the springing medium, and hydraulic legs, variable in length, which are connected to an accumulator and engine-driven pump. Height corrector valves admit or exhaust oil from the legs to compensate for changes in load

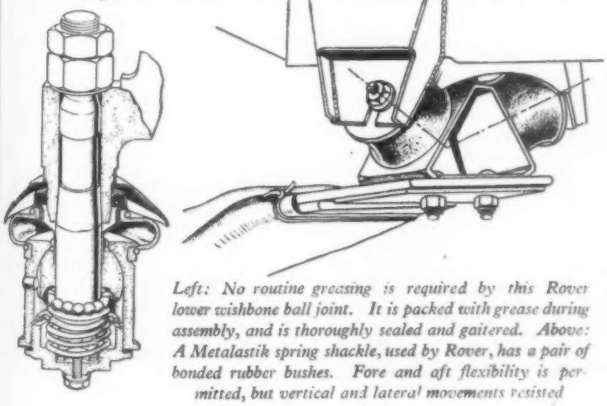


drums easily and to prevent vibrations from reaching it, the entire cross-member on which the front suspension assemblies are mounted is often carried on flexible rubber mountings.

This could lead to relative movement between cross-member and body; to prevent this, these mountings are spaced widely apart. On the Humber Hawk and Super Snipe, for example, they are at the corners of a large triangle, whilst Rover, on their new model, mount the front suspension on a completely separate sub-frame, attached to the main body structure at six rubber-insulated points. This sub-frame, complete with the engine, being detachable from the body, can be removed from the car for servicing.

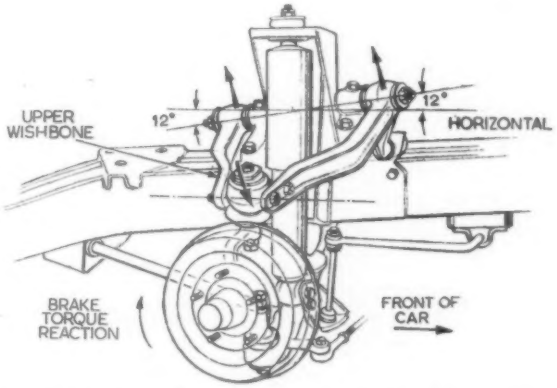
At the rear axle, insulation is usually provided by rubber-bushed shackles, rubber mounting of the spring on the axle side tubes, and dampers carried in rubber on both the axle and chassis.

When a car is braked, a proportion of the weight is transferred from rear to front wheels, and there is a tendency to "brake dive," in which the front of the car dips as the springs compress. A method of overcoming this is shown in an accompanying illustration, and it will be seen that the upper wishbone has an inclined pivot, so that when the brakes are applied, the torque reaction from the drum forces downwards the outer



Left: No routine greasing is required by this Rover lower wishbone ball joint. It is packed with grease during assembly, and is thoroughly sealed and gaitered. Above: A Metalastik spring shackle, used by Rover, has a pair of bonded rubber bushes. Fore and aft flexibility is permitted, but vertical and lateral movements resisted

Brake dive is overcome on the 3-litre Rover by inclining the pivot of the front suspension upper wishbone. Braking produces an upward reaction on the chassis



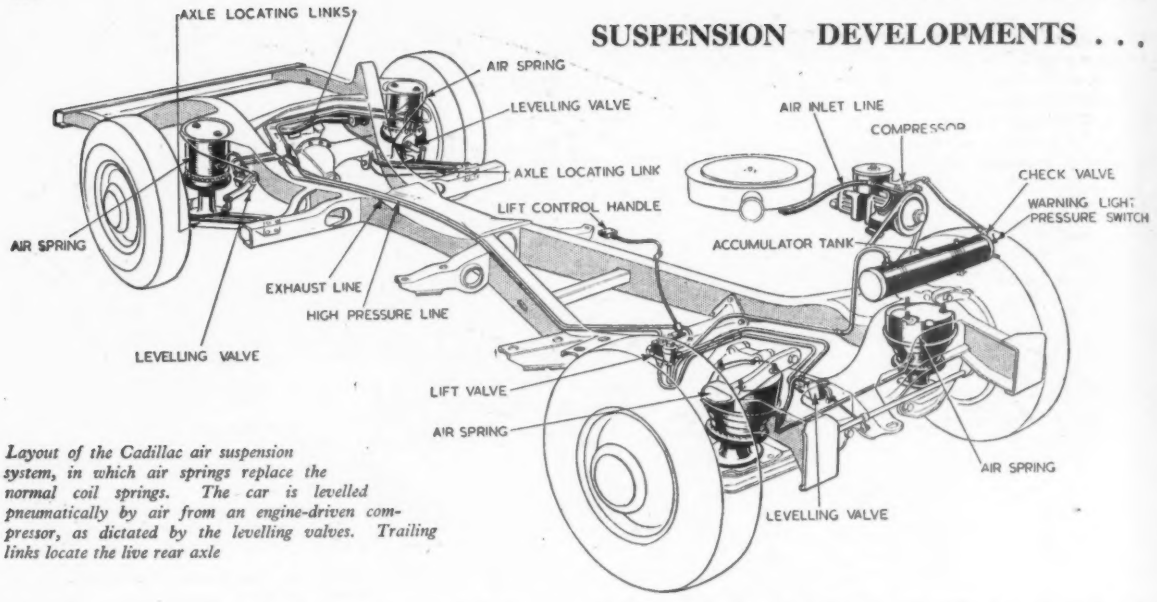
end of the wishbone, the corresponding reaction at the frame producing a lift on the front, which counteracts the dive.

A fundamental disadvantage of conventional systems using metal springs is that the load carried greatly affects the quality of the ride. Generally, rear suspension is affected most, because this is subject to the biggest change in load, which can vary, of course, between that with a driver only aboard, and that with full load of passengers and luggage. Because of this, rear springs must have a higher frequency (harder springing) than is recognized as being the best for maximum comfort, in order to be able to support the extra weight when the car is fully laden. Auxiliary spring leaves partly overcome this trouble. Also, the amount of upward suspension movement is limited with a high load, because the springs have been deflected or compressed, and the axle is now closer to the bump stops.

Normal springing, therefore, gives a varying quality of ride according to load, and this problem is most serious in the largest and smallest vehicles—namely, the inexpensive family car, and the lorry or bus, both of which have to suffer bigger variations in load than does a large car, for example.

If the position of the axle relative to the chassis could be restored to the same position whenever the load changed, much softer springing could be used, since the same range of suspension movement would always be available. This is more easily done if a gas under pressure replaces the steel spring, and this

SUSPENSION DEVELOPMENTS . . .



Layout of the Cadillac air suspension system, in which air springs replace the normal coil springs. The car is levelled pneumatically by air from an engine-driven compressor, as dictated by the levelling valves. Trailing links locate the live rear axle

principle was first used by Citroen at the rear of their six-cylinder model in 1954. Subsequently, it has been applied to all wheels of their DS.19 and ID.19 cars.

In principle, car weight and suspension movements are sustained by a gas under pressure in a suspension leg at each wheel. A flexible rubber diaphragm separates the gas from a column of oil, in a cylinder which contains a piston connected to a suspension link. Gas container and hydraulic cylinder are carried on the chassis.

By varying the amount of oil in the cylinder, the effective length of the suspension leg is varied, and this changes the height of the car above the ground. Therefore when passengers enter the car, the springs are compressed and the car sinks nearer the ground, the original unladen height can be restored by passing more oil into the hydraulic cylinder from an accumulator charged from an engine-driven pump.

Levelling is automatic, and oil is admitted or released from the suspension units according to the position of a levelling valve mechanically connected to the suspension—in this instance, it is sensitive to movement of the anti-roll bars. Such a system enables low frequencies of about 40 cycles per minute to be used, compared with 80 or more for normal suspension systems.

In the Citroen system, damping of wheel movement is carried out in the hydraulic part of the spring leg, so that the oil performs two functions. A manual overriding control for the oil supply enables the suspension leg to be extended for wheel-jacking purposes, and it is also possible to increase the ground clearance for off-the-metalled-road motoring.

An alternative to oil levelling is air levelling, as used in pneumatic systems that have been developed by manufacturers in America and in this country; among them are Dunlop who have evolved their Pneuride system, which is beyond the experimental stage for application to commercial vehicles.

In this arrangement, an air spring for each wheel, consisting of a steel canister fixed to the chassis and a piston operated by the suspension, is sealed by a rubber diaphragm which rolls between piston and canister. As load is added to the vehicle and it sinks on its springs, extra air is added to the canisters from a compressor, driven by the engine, via an accumulator. Levelling is again automatic, by valves sensitive to chassis height. It has a delayed action to ensure that it operates only when vehicle load changes, and is not affected by motion on the road. With air charging to maintain a constant static height, the volume of air in the spring does not change as it does with the Citroen system, and suspension frequencies remain about constant with varying load.

A steeply rising resistance to upward wheel movement must be provided to prevent crash-through to the bump stops. This is obtained by shaping the piston and canister mouth to vary the effective area of the diaphragm as it rolls between them.

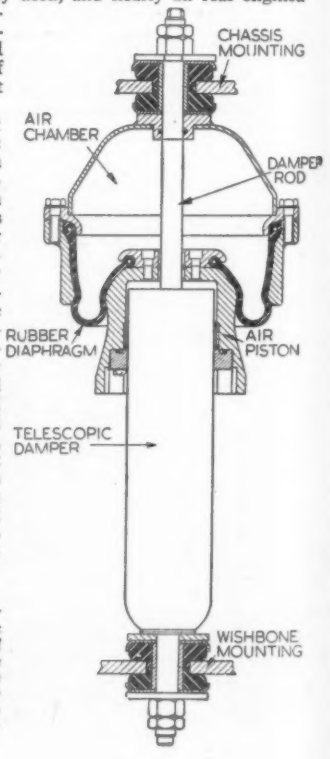
Two main problems remain to be overcome with air suspension—reduction of unsprung weight and more effective damping. Low suspension frequencies with air springs mean large wheel movements and, therefore, greater inertia loads, which have to be resisted by the dampers. These loads can be reduced only by minimizing weight of the moving parts, but even so, conventional hydraulic dampers do not have the correct characteristics for air suspension, and, in fact, a damper with a resistance which can be varied according to car weight is needed. There is also a problem of noise transmission through the dampers.

In the application of air springing to American cars results have not been up to expectations because unsprung weight has not been materially reduced. The air springs are fitted to existing suspensions, with modifications only where required to give positive location, such as of the rear axle (normally performed by the half-elliptic leaf springs). Unless frequencies can be reduced to 40 cycles per minute or even less, a significant improvement in ride will not be obtained, and it is clear that the introduction of air springs will force the issue so far as independent rear suspension is concerned, this being essential if reduced unsprung weight is to be obtained.

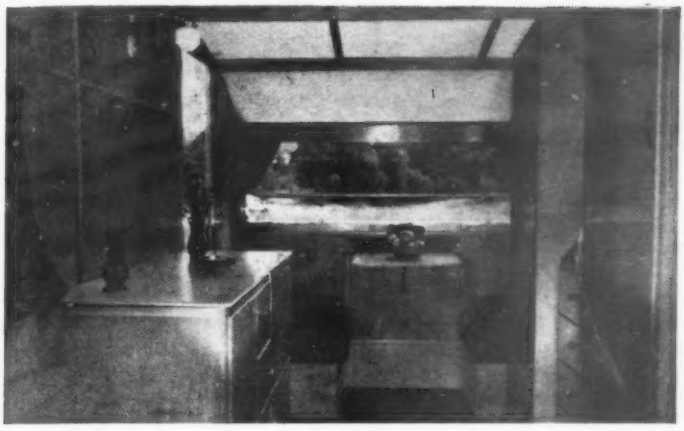
In the United Kingdom and America the large manufacturers show no signs of adopting independent rear suspension, though on the Continent it is widely used, and nearly all rear-engined cars have it. Manufacturers with established systems will hold an initial advantage in the era of pneumatic suspensions that is certain to come.

It seems very likely that within a year pneumatic suspension will appear on a growing number of commercial vehicles, and that in about two years, suspensions designed specifically for air springing will be incorporated in new private car models. Since the advantages of this system have been demonstrated, it is inevitable that all manufacturers must turn their attention to it, and indeed many already are well advanced with experimental work. Additional expense, because of extra equipment such as pump and valves, is likely to delay its application to cheaper cars. Air-assisted brakes and steering are possibilities if an air levelling type of suspension is installed.

DONALD PETERS.

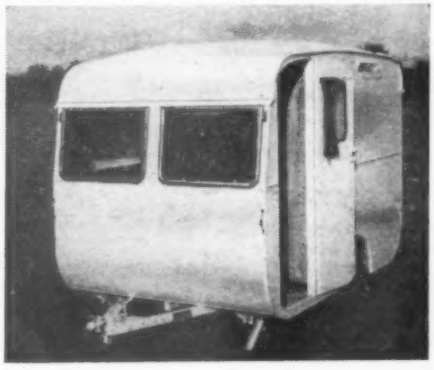


In this experimental Dunlop air spring, the body of a telescopic damper is fixed to the piston and provides a connection to the suspension. The shape of the piston and mouth of the air chamber gives a changing effective area to the diaphragm as it rolls



EARLS COURT HIGHLIGHTS

Left: This interior view of the Fairview Fairy shows the panelled walls and single-panelled roof. Below: Headroom has not been sacrificed in the compact 8ft 6in Eccles Nipper, which is said to weigh only 9 cwt.



In Caravan Corner

NO fewer than 26 caravan constructors are displaying their wares at Earls Court this year, several of them for the first time. The industry, especially on its export side, is in a very healthy state and its products, in both quality and value, are a credit to the nation. Of especial interest will be the caravans designed for towing by cars of 800 c.c. and upwards. It is thought that these very small vans will have a strong appeal to the family man of moderate means, both in this country, and on the Continent where there is the vast Volkswagen market.

Alpersons, who at last year's show took over £200,000 worth of export orders, are showing four of their range of Sprite vans. These are the new 9ft 6in four-berth Ariel, the 14ft four-berth Musketeer, which replaces the popular Sprite 14, the 18ft Sunway and the new 22ft Belvedere. The two smaller vans are designed essentially for touring, while the Sunway and Belvedere are for static or holiday purposes. (Stand 52.)

Berkeley have a selection from their Consul and Cavalier ranges. Examples of these well-known vans include the 22ft four-berth Senior Consul, a living van with solid fuel fire, an 18ft Junior Consul, which is a scaled-down version of the Senior, and a 16ft four-berth Cavalier. This latter is a touring van with end kitchen and toilet compartment. (Stand 34.)

Beverley are still concentrating on large high-class static holiday caravans. Included in their display will be two four-berth, 22ft models, the Cruiser De Luxe and the Marathon 59. Each of these vans has a very complete specification. Quite new is a third model, the Supersize. This is a 26ft by 8ft five-berth which is divided into four separate rooms with the additional accommodation of a full size bathroom. (Stand 37.)

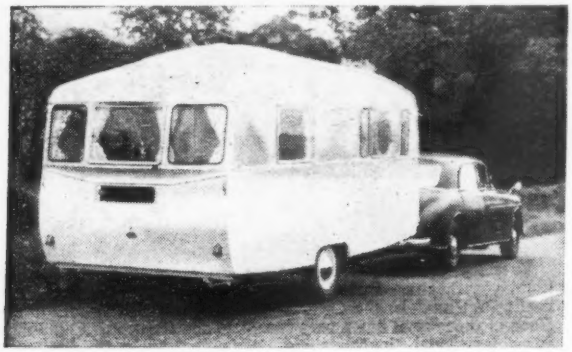
Carlight will have on their stand examples of quite exceptional quality. The four models produced by this concern are the 22ft four-berth Colonial Mk VII, the 17ft 5in Continental, also a four-berth, and two 15ft 5in vans, the Cosmopolitan and the Caribbean. The former is a four-berth and the latter a two-berth. All Carlight vans are in the luxury class and are very comprehensively equipped. (Stand 29.)

Car Cruisers will show an example of their well-known 2/14 Clubman touring caravan, which is a luxury 14ft two-berth, and also their new Clubman 300. This latter is a 15ft 6in, four-berth with end kitchen, designed specifically for the touring enthusiast. (Stand 33.)

Cheltenham's exhibit will include a 15ft 8in, four-berth Springbok which now has a much improved triangulated chassis, independent suspension and spring dampers. On the same stand will be a 12ft 9in. two-berth Sable, of the type recently

Interior of the luxurious Carlight Caribbean

Left: For seaside or country holidays, the new 18ft Paladin Rapier *Right: The new 300 Clubman model retains the typical Car Cruiser outline*



Export version of the Thomson Glenalmond Mk. 4. Exceptional window space is one of its many attractive features

In Caravan Corner . . .

tested by *The Autocar* in a tour to the Arctic Circle, and a Waterbuck of the same dimensions. (Stand 43.)

Country Life will have at Earls Court two caravans, one each of touring and static holiday types. The Silver Langull is a 13ft 6in, four-berth, with drop-down double bed, and the Languard a 22ft, four-berth, which can be in the form of either two double beds or two singles and one double. (Stand 30.)

Cresta are newcomers to Earls Court. Their range on show will be very complete, from the 11ft, ultra-light Kozy to the 18ft 6in residential Vega. Between these two come the 13ft 6in Transcontinental, designed for high-speed touring, and the 16ft 6in Capella, which is considered to be a dual-purpose holiday/touring van. All have four berths. (Stand 48.)

Eccles, one of our oldest caravan manufacturers, will have a very wide range of exhibits. Their contribution to the ultra-light class will be the 8ft 6in, three-berth Nipper, the kerb-side weight of which is claimed to be not more than 9 cwt. Next comes the four-berth, 10ft 6in Nymphette, followed by the 12ft 6in Avenger. In the larger range comes the 15ft Landfarer, the 16ft 6in Enchantress and 17ft 6in Leader, all of which have four berths. (Stand 35.)

Ensor will show four vans, three of which, the Elite, Elect and Elf, are established favourites. Entirely new is the three-berth, 10ft Kiwi, with toilet compartment. (Stand 28.)

Fairholme are also showing four vans, ranging from the 15ft 6in Romeo to the 22ft static holiday Forester. At the show the whole side of the latter will be in transparent plastics. In medium sizes will be the 16ft 6in Goldfinch, luxury plus decorated in bird's-eye maple, and the dual-purpose touring/holiday 18ft Bullfinch. (Stand 46.)

Fairview will have on exhibition their five-berth holiday Unique of 22ft and the 16ft Landscape. A feature common to both is the provision of French windows. New is the Fairy, a three-berth of 11ft 8in, with a full-width rear window opening up to 90 deg. (Stand 50.)

Freeman are limiting their display to one model, the 19ft 6in, four-berth Talisman. This is in the highest quality range, with a very comprehensive specification. (Stand 36.)

Jubilee specialize in holiday/home vans and will be showing their Mayfly and Hornet models, both of 22ft with accommodation for four, and the 26ft Hornet Major which has two double beds in the front compartment and two single beds in an end bedroom. (Stand 38.)

Lynton's stand will have on it their new 14ft Bel-air, the 17ft Palma and the 22ft Belvue. The Bel-air, primarily intended for the continental market, is distinctive in having a large bed which will accommodate three adults or four children. The Palma is of the static holiday type, and the Belvue a somewhat similar type with sleeping accommodation for five persons. (Stand 31.)

Marston, who have also entered the lightweight market, will be showing the new 12ft Caravelle. This is a five-berth van. The remaining three vans on this stand are all of the static holiday type. They are the 16½ft Invester, the six-berth, 22ft Marstonette and the Magna, also 22ft. (Stand 53.)

Nene Valley are showing three large vans, all of which are of the maximum dimensions allowed for towing on British roads without special permission—22ft by 7ft 6in. The Crescent and Wonder are both four-berth vans, and the Palace five/six-berth. (Stand 40.)

Paladin have always paid particular attention to light weight, but this year they are not showing anything smaller than the four-berth, 14ft Buccaneer. Next larger is the 16ft Toreador, and biggest is the 18ft Rapier Mk. 2, a four-berth static holiday van. (Stand 44.)

Picador, who are appearing at Earls Court for the first time, will have the largest van there. It is the unusual Picador 32, which is, in fact, a combination of two 16ft vans. Their "22" will also be displayed in a modernized form, together with an 11ft 6in Petite touring van. (Stand 51.)

Pilot will concentrate on one Panther Mk. 10; this is a large caravan in the luxury class. It is complete even to built-in television and a tiled bathroom with 5ft bath. (Stand 45.)

Safari vans at Earls Court will, while retaining their classic outline, feature their new full-width, front and rear bay windows. The range shown will include the 18ft Super Senior, the 16ft Super Sixteen and the 14ft 6in Four. All are four-berth models. (Stand 32.)

Pemberton intend to display three caravans, the smallest of which is the all-aluminium, 15ft Starlette, designed specifically for touring. Next in size is the four-berth 18ft Sunstar, which may be had as either a residential or holiday van, and largest is the 22ft four/five-berth Sunnyvale. This latter is of the static holiday type. (Stand 49.)

Stirling will not be exhibiting their little Ten this year. Taking its place on the stand will be the Fourteen, a high-speed touring 14-footer which may be had as a four- or six-berth van. Also on the Stirling stand will be the Twenty-two—a big caravan of excellent layout and full specification. (Stand 41.)

Normandie are showing for the first time since their new 15ft four-berth Mascot, which has Flexitor independent suspension and Bowson stabilizer. Also on the stand will be examples of the Flamingo Mk. 3 and Kingfisher, both of which are 22ft vans. (Stand 47.)

Thomsons' contribution to the lightweight market is the four-berth, 11ft Glendale. In deference to continental requirements the rear double windows open beyond the horizontal. A version of the popular Glenalmond, with toilet compartment, will also be on show. An example of the Glenalmond has been tested on the road by *The Autocar* and found to have excellent towing characteristics. The biggest Thomson van on show will be the 18ft, four-berth Glenrosa. A luxury touring model for cars of 2½ litres and upwards. (Stand 54.)

Willerby's smallest van to be presented at Earls Court will be the 12ft Kyte, which is credited with a weight of only 9 cwt 1 qr. It has an end kitchen and toilet compartment. For those who want a dual purpose touring/static holiday van there will be the 18ft Eagle. Also dual purpose, static holiday/residential, are the 22ft Fulmar and Mobilhome. (Stand 39.)

Round the Accessory Stands

IN the accessory world nothing seems to be showing more general activity than instruments. Great and small instrument firms are to show petrol gauges which can be accurate even when coupled to modern, queer-shaped tanks; a smaller firm's product, for one make of car only, is said to be accurate to a pint. There will also be new instruments for easier measuring of sump-oil level.

Polished light alloy and stainless steel continue to gain ground in standard cars, and may ultimately replace plated steel for exterior work. The Ward range of stainless steel styling accessories is to appear for the first time at a London Show. Another firm is to exhibit windscreen wiper blades and arms of the same non-rusting material.

Seat covers are useful, and with the slackening of the craze for leopard, zebra, tiger and other exotic covers, are reverting to bright but plainer materials. Transparent plastic covers for beautiful upholstery will be seen more, and many firms are to feature materials with untarnishable silver thread woven in. Courtaulds, newcomers to motor shows, are to introduce heavy-duty rayon upholstery.

So many cars have dull and almost ugly floor coverings, to keep down first cost, that it will be no surprise to find more firms showing attractive car carpeting of various kinds. Thick coir pile, sheepskin, and vari-coloured felt of great thickness are among materials to be expected.

For years, auxiliary fog and driving lamps have been growing shallower, to fit the limited space of modern car fronts. Marchal, in their Visorims, will show for the first time auxiliary lamps designed to be fitted directly into the frontal styling, as accessories. In some cases they can replace existing side lamps, and can have their own built-in sidelamps and winkers. Another maker is to introduce a spot lamp with the American fashion of a real pistol handgrip, which is fun, but also practical!

A marked change in interior heaters may be expected, for under pressure from export markets car body sealing has been growing better and better. And for English use, smaller and lighter fresh air intake heater-ventilators will be increasingly seen. Such compact units are often applicable to accessory fitting.

Mirrors will continue to appear in more and more different versions, with a tendency for stylish wing mirrors, and wider interior ones to take full advantage of today's large rear windows.

Most motorists are interested in louder, clearer and sweeter horns, but there is no agreed standard of measurement of volume and timbre, horns cannot be blown in an exhibition, and telephone arrangements for listening are not the real thing. So the Show may again be disappointing in this class of accessory. There are to be in general more working exhibits, however, and this is a good thing.

In recent years the greatest tyre trend has been the improvements in family-car-tyre tread grip, which has progressed year by year. At this Show there will be seen also some of the high-performance tyres which have made news during 1958 for the owners of fast cars. These cars have been setting a problem for the tyre makers, who are now expected to show their latest solutions.

BUILDING THE BODIES . . .

continued from page 545

of modern times and, while founded only in 1926, the firm already lists some 700 personnel who have stayed for more than 25 years. In 1945 the labour force numbered 6,000 men: now it is 16,000, and additionally output per man has risen by 50 per cent. The company claims to have built two out of every five car bodies made in this country since the war.

Currently the company produces most of the Austin requirements, completely trimmed Hillmans and shells for Sunbeam and Singer, shells for the Jaguar saloons and panel sets for the 150 series, shells for all Morris cars except the Minor, for Wolseley 15-50 and 6-90, M.G. Magnette and MGA, all Rovers except the Land-Rover, the larger Standards painted and trimmed, and shells for the Rolls-Royce Silver Cloud and Bentley Series S.

Thrupp and Maberly. Dating back to 1760, the year which saw the birth of Mulliners, this firm, for so long associated with specialist coachwork, is now a part of the Rootes Group and attends to the painting and trimming of the bodies in undercoat received from Pressed Steel. These models are the Sunbeam Rapier hard top and drophead, and Hillman Minx and Singer Gazelle dropheads. The firm also fit their own patented divisions in the Humber limousines. This last development involves the use of curved glass in the division which, when lowered, tucks itself round the base of the front seat backrest out of the way of rear passengers' feet.

The considerable care with which the Rootes Group bodies are painted is exemplary, and a very high standard of inspection is insisted upon. Instead of using a continuously moving conveyor, Thrupp and Maberly give the staff every chance for careful work by keeping the cars stationary during trimming operations; the assembly lines are moved along by a winch at intervals after a warning hooter has been sounded.

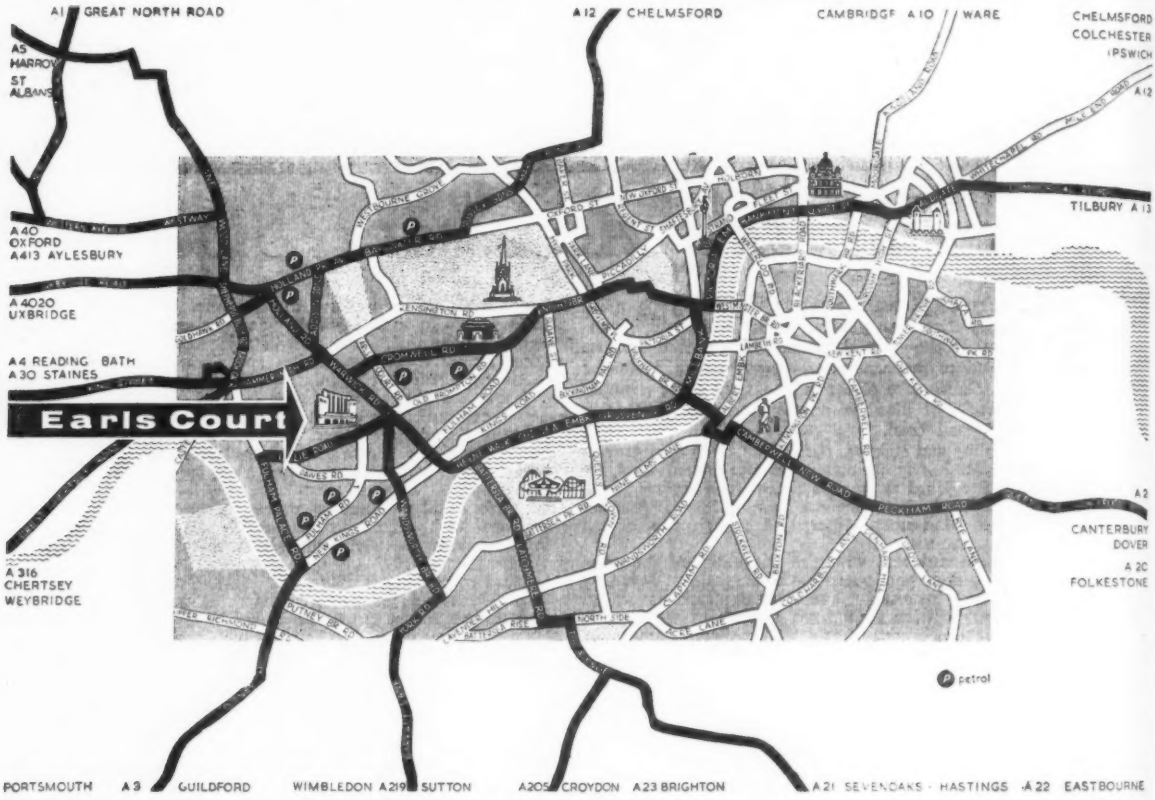
Vauxhall (Body Division). Only Vauxhall Motors have their own body division as a normal part of their production system, and it would be inappropriate to leave out of a survey a department which is one of the country's major body makers. As part of the car manufacturing company, the division does not have a separate coachwork stand at London shows; its products are to be seen on the manufacturer's stand.

With the recent, huge expansion programme now complete, the body division is most impressive. Not merely are there batteries of double-acting presses in action, with scrap taken away automatically by under-floor conveyors, but there is even room for new lines of these giant machines, with basements already prepared. A simple, yet clever, system of conveyors enables a stock of parts to circulate and fill the breach in the event of any minor hold-up on any sub-assembly line.

Equally noteworthy is the plating works, believed to be the largest in Europe. All parts to be chromed are flashed with copper and then nickel-plated before receiving the final coat of chromium. Lines of automatic polishers, with their mops designed to fit every contour of the parts concerned, produce the requisite finish at each appropriate stage. The whole plating works is automatic, even to the transfer of parts from a conveyor serving one solution to another destined for a different dip.

The main assembly lines are so arranged that three different types of body shell may be built as required—in other words a Victor may be followed by a Victor estate car, followed in turn by a six-cylinder model. The completed bodies are lowered from the first floor directly on to the main conveyor carrying engine, transmission and suspension units. Every car is given a thorough waterproofing test on completion, with an inspector riding inside to seal any leaks. The cars finally go through another water spray to ensure that the required sealing has been effectively completed.

EARLS COURT GUIDE—continued from page 528



Some of the garages where petrol may be obtained all night or until midnight are marked "P" in the map above, and recommended through routes to the Earls Court area are shown in black. The map is based on information kindly provided by the Automobile Association

West Brompton Balcony—by the West Brompton entrance. *Light refreshments (help yourself service).*

Philbeach Balcony—entrance from ground and first floors, by the Philbeach entrance; situated in the corresponding position to the West Brompton Balcony, on the opposite side. *Tea and coffee buffet (help yourself service).*

First Floor Buffet—bar No. 10. *Tea buffet (help yourself service).*

Warwick Lounge North—first Mezzanine floor, at the Warwick Road entrance and near the Restaurant Française. *Cocktail and coffee lounge, open all day.*

There will be licensed bars and buffets on the ground and first floors. There will be a canteen on the lower ground floor below the West Brompton entrance. *Lunch 12.30-2.30 p.m.: supper 6-7.30 p.m.* All the restaurants will remain open until 9 p.m. unless otherwise stated and the licensed bars will be open from 11 a.m. to 9 p.m.

. . . TO THE SHOW FACILITIES

Lost Property

There will be a lost property office on the first floor. Philbeach side, adjoining stand 494.

Cloakrooms

A cloakroom service will be provided on both ground and first floors. However, on rainy days this service is always heavily overloaded and visitors would be well advised—even at risk of getting wet—to leave their coats in their locked cars.

Banking

The National Provincial Bank, Ltd., will operate a temporary branch office behind the turnstiles inside the Warwick Road entrance from 10 a.m. till 9 p.m.

Telephones and Cables

Telegraph and telephone services will be available from stand 55.

Post Office

The usual postal facilities will be available from the G.P.O.'s temporary office, which will be open from 10 a.m. to 8 p.m. in the Mezzanine floor above the Warwick Road entrance, reached by a staircase leading from ground and first floors to the South Restaurant.

First Aid

A First Aid Post will be manned by members of the St. John Ambulance Brigade in Room 15, at the rear of stand 55, on the ground floor to the left of the Warwick Road entrance; telephone FULham 1234, Ext. 10.

. . . FOR OVERSEAS VISITORS

Interpreters will be available for the assistance of overseas visitors, in the Overseas Visitors' Lounge, situated in the Warwick Hall, second Mezzanine floor, above the Warwick Road entrance. They can also be contacted by telephone, number FULham 1234.

Foreign visitors can obtain admission to the Show on production of a passport at the Overseas Reception Bureau in the main Warwick Road entrance hall. Overseas trade visitors will be issued with free copies of the catalogue and buyers' guide, together with a souvenir badge.

. . . WHERE TO FIND THEM

Cars—Ground Floor, centre, and right of Warwick Road Entrance.

Coachwork—Ground Floor, right of Warwick Road Entrance.

Accessories and Components—First Floor, left of Warwick Road Entrance; and Ground Floor, adjacent to Car, Coachwork, Caravan and Motor Boat sections.

Tyres—First Floor Balcony, Right of Warwick Road Entrance.

Motor Boats and Marine Engines—Ground Floor, Left of Warwick Road Entrance, and adjoining West Brompton Entrance.

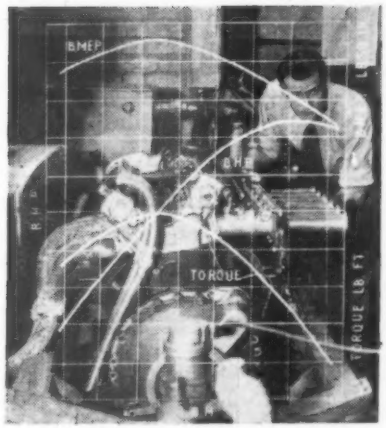
Transport Service Equipment—First Floor, Right of Warwick Road Entrance.

Caravans and Trailers—Ground Floor, Left of Warwick Road Entrance.

Publications—Ground Floor, front.

Clubs and Associations—Ground Floor, front.

***THE WARWICK ROAD ENTRANCE** is the main way into Earls Court from the ticket offices, and is opposite to the double, freestanding staircases.*



Data Tables

AND HOW TO INTERPRET THEM

SPECIFICATIONS of cars, British and foreign, which can be bought in this country are tabulated on the following pages. They do not include every single model produced in the world*. When a model is available in several forms, for example as saloon, open car and coupé, the specification for one only is given. Invariably it is the saloon version in the cheapest form in which it is marketed, and the prices of alternative body styles and, for example, de luxe versions, are contained in the usual list of new car prices on pages 582-3. Leading figures are given, and abbreviations are used for the terms, with a key for cross-reference.

The information is as supplied by the manufacturers, and although every effort is made to cross-check this with existing records, we cannot accept responsibility for errors. Where cars have been the subject of a road test, the information recorded by *The Autocar*, such as weight, is given if it differs from that quoted by the manufacturer. There are inevitably many blanks in the specifications of the new American cars; this is because the 1959 models are being announced at this time of the year, and neither *The Autocar* nor the British concessionaires have yet received the makers' full specifications. Also in respect of the American cars, only the models imported for sale in this country are tabulated, but in the price booklet referred to in the footnote, the full range of the companies' products are given where the information is available.

The main specification particulars begin in column 4, which gives the engine position, the number of cylinders and their arrangement. As most readers are familiar with the European practice of quoting bore and stroke dimensions in millimetres and engine capacities in cubic centimetres, this designation has been followed. Conversions, for those more familiar with the use of inch units, are: 25.4 mm = 1in, and 1 litre (1,000 c.c.) = 61.02 cu in.

There are columns for brake horsepower, gross and nett; unfortunately there is no world-wide agreement on the standards of engine testing. For instance, the figures recorded in the United States are for engines without power-absorbing accessories like generators, water pumps and car exhaust systems. Furthermore, the ignition is adjusted at each speed increment to obtain the maximum reading. Therefore the power produced by the engine when fully equipped as installed in the car may be as much as 15 to 25 per cent below the gross figure. All Continental manufacturers use a standardized method of reading, either DIN, or in Italy CUNA; each of these methods approximates to the power output of the engine as installed in the car. Because of the importance attached to high horsepower ratings in the U.S.A. most of the Continental manufacturers now quote a gross or S.A.E. rating in addition, for that market. There is one other small factor involved, for the unit of horsepower in Anglo-Saxon countries is not identical with that used on the continent of Europe (designated ch. or cheval-vapeur)—1 H.P. is equal to 1.014 ch.

Comparison by B.M.E.P.

When comparing the relative efficiencies of engines, the b.m.e.p. (brake mean effective pressure) is the most revealing figure. It is directly proportional to the torque developed, but whereas this is related also to engine capacity, b.m.e.p. is independent of size and, therefore, direct comparison can be made. The b.m.e.p. is that part of the mean gas pressure within a cylinder which produces useful effort during each working stroke. With modern design and efficient induction systems, an engine should attain at least 125 lb/sq in b.m.e.p.

Compression ratios have a direct bearing on the b.m.e.p. produced. With modern high octane fuels and improved combustion chamber design, compression ratios of up to 10½ to 1 are quite common in American engines. Another factor which permits the use of these high ratios is the almost universal use of automatic transmissions on American cars; these prevent low-speed engine operation at large throttle openings—the condition at which detonation takes places.

The point at which maximum torque is developed gives an indication of the car's pulling power. If peak torque occurs below 2,000 r.p.m. in an engine which has its peak power at about 4,500 r.p.m., pulling power at low speeds in a high gear should be very good, and the car should be flexible, i.e., should not require frequent gear changing. Engines for sports cars usually develop their maximum torque much higher in the speed range, so that the peaks of the torque and power curves are much closer together, with the emphasis on high b.h.p. from a given size of engine. To obtain maximum benefit from this characteristic, frequent gear changing is necessary.

An important factor, when comparing performances, is the road speed per 1,000 r.p.m. of the engine; it is a more valuable guide than the transmission ratios, which in turn are useful as an indication of the spacing of the ratios. For medium and large cars a figure of 20 m.p.h. per 1,000 r.p.m. suggests effortless cruising in top gear.

Many cars are now fitted with an overdrive as standard equipment or as an optional extra, and when available this is shown, bracketed in the column of gear ratios.

When an automatic transmission is fitted as standard equipment, this is indicated by an "A" before the ratios, and a footnote contains reference to such transmissions when they are offered as optional equipment. There are two main types of automatic transmission, those with a fluid coupling and, therefore, four sets of epicyclic stepped ratios, and those with a torque converter coupled to two or three sets of epicyclic gears, in which the converter operates on all but the direct top gear.

In information relating to brakes, it is shown whether the car is equipped with drums or discs, or both, and also if servo assistance is provided to reduce the operating load applied by the driver to the brake pedal. The most important figure in this group is the "area of metal rubbed" by the friction surfaces. It is far more useful than the more widely used "area of the friction material", and emphasizes the greater efficiency of disc brakes, the pad area of which is small in comparison with lining area of shoe brakes.

When considering steering characteristics, the number of turns from lock to lock should be related to the turning circle in the next column. If the turning circle is large, a small number of turns from lock to lock may not necessarily indicate high gearing. A car with a turning circle of 33ft could be considered as having a good lock—an average British main road is about 35ft wide.

Every effort has been made to check the information contained in these tables up to the moment of going to press. Naturally changes—not always notified at once—are made from time to time, and calculations based on these figures should be accepted only after obtaining confirmation from the manufacturer.

** A separate booklet, "The Autocar" Buyers' Guide, published on the opening day of the Motor Show at 1s, gives data for all makes and models. It will be on sale at "The Autocar" stand (No. 69) at Earls Court, or it can be obtained direct from Iliffe and Sons Ltd., Dorset House, Stamford Street, London, S.E.1, or from all leading newsagents and booksellers.*

The Autocar BUYERS' GUIDE

ABBREVIATIONS

Valves
O.=Overhead; S.=side; O.C.=Overhead camshaft; O.I.=Overhead inlet, side exhaust.

Arrangement of Cylinders
I.L.=In line; V.=Vee; H.=Horizontally opposed.

*=Air-cooled.

Make of Carburettor or Fuel Injection
S.U.=S.U.; SO=Solex; ZE.=Zenith; ST.=Stromberg; WE.=Weber; CA.=Carter; RO.=Rochester; AM.=Amal; Bi=Bing; HO=Holley; Vi=Villiers; Ji=Jikov; BO.=Bosch fuel injection.

Engine Position
F.=Front; R.=Rear.

Make and Model	U.K. Basic Price (Saloon unless otherwise indicated)	Total Price in U.K. including P.T.	Engine Position, No. and Arrangement of Cyls.	Bore and Stroke	Engine Capacity	Maximum Gross and Nett B.H.P. @ Spec. R.P.M.			Maximum Torque and B.M.E.P. @ Spec. R.P.M.			Compression Ratio (to 1)	Valve Position	Fuel Tank Capacity (Imp. Gals.)	Make and Number of Carburettors or Make and Type Fuel Injection	Forward Overall Gear Ratios including Overdrive if fitted				Type of Clutch, Manual or Automatic Transmission
						Gross	Nett	R.P.M.	Torque	B.M.E.P.	R.P.M.									
	£ s	£ s d		mm	c.c.				lb ft	p.s.i.										
ABARTH																				
750 Derivazione ...	615/7	924/7	R. 4-I.L.	61×64	747	—	41.5	5,500	36	137	3,500	9.0	O.	6	WE (1)	4.3	6.5	10.1	16.5	S.D.P.
750 Zagato G.T. ...	1,498	2,248/7	R. 4-I.L.	61×64	747	—	43	5,800	36	137	3,500	9.8	O.	6	WE (1)	4.1	6.1	9.4	15.4	S.D.P.
750 Zagato T. Cam	—	—	R. 4-I.L.	61×64	747	—	57	6,200	50	166	5,000	9.7	O.	6	WE (2)	3.8	5.8	8.9	14.8	S.D.C.
A.C.																				
Ace (A.C.)	1,188	1,783/7	F. 6-I.L.	65×100	1,991	—	90	4,500	110	138	2,500	8.0	O.C.	13	SU (3)	3.6	5.0	7.2	12.3	S.D.P.
Aceca (Bristol).....	1,700	2,551/7	F. 6-I.L.	66×96	1,971	—	105	4,750	123	154	3,750	8.5	O.	13	SU (3)	3.6	4.7	6.6	10.6	S.D.P.
ALFA ROMEO																				
Giulietta Berlina	1,278	1,918/7	F. 4-I.L.	74×75	1,290	—	53	5,200	68.7	133	3,000	7.5	2.O.C.	9	SO (1)	4.6	6.2	8.9	14.3	S.D.P.
Giulietta T.I.	1,395	2,093/17	F. 4-I.L.	74×75	1,290	—	63	5,500	75.9	145	3,500	8.0	2.O.C.	11¾	SO (1)	4.6	6.2	8.9	14.3	S.D.P.
Giulietta Sprint ...	1,575	2,363/17	F. 4-I.L.	74×75	1,290	—	80	6,000	83	158	4,250	8.0	2.O.C.	11¾	SO (1)	4.6	6.2	8.9	14.3	S.D.P.
Giulietta Spyder ..	1,498	2,248/7	F. 4-I.L.	74×75	1,290	—	80	6,000	83	158	4,250	8.0	2.O.C.	11¾	SO (1)	4.6	6.2	8.9	14.3	S.D.P.
2000	1,998	2,998/7	F. 4-I.L.	84.5×88	1,975	—	105	5,300	112	140	3,500	8.25	2.O.C.	15¾	SO (1)	(4.1)	4.8	5.4	9.5	15.6	S.D.P.
2000 Spyder.....	2,195	3,293/17	F. 4-I.L.	84.5×88	1,975	—	115	5,800	—	—	—	—	2.O.C.	15¾	SO (2)	(3.9)	4.6	5.2	9.1	15.0	S.D.P.
ALLARD																				
Gran Turismo	1,700	2,551/7	F. 6-I.L.	82.2×106	3,442	210	—	5,750	213	153	4,000	8.0	2.O.C.	20	SU (2)	3.5	4.3	6.4	10.6	S.D.C.
ALVIS																				
3-litre TD.21	1,995	2,993/17	F. 6-I.L.	84×90	2,993	—	104	4,000	152.3	125.5	2,500	8.0	O.	14½	SU (2)	3.8	5.0	7.2	11.6	S.D.P.
AMBASSADOR																				
Custom	—	—	F. 8-V.	101.6×82.6	5,358	270	—	4,700	360	166	2,600	9.7	O.	16½	HO (1)	A.		—		T.C.
ARMSTRONG SIDDELEY																				
Star Sapphire	1,763	2,645/17	F. 6-I.L.	97×90	3,990	165	—	4,250	230	142	2,000	7.5	O.	16	ST (2)	A.		—		T.C.
Model 346	1,910	2,866/7	F. 6-I.L.	90×90	3,435	125	—	4,700	182	131	2,000	7.0	O.	16	ST (1)	4.5	6.3	9.3	13.9	S.D.P.
ASTON MARTIN																				
DB.4	2,650	3,976/7	F. 6-I.L.	92×92	3,670	263	—	5,700	240	162	4,250	8.2	2.O.C.	19	SU (2)	3.5	4.4	6.2	8.2	S.D.P.
DB. Mark III	2,050	3,076/7	F. 6-I.L.	83×90	2 922	202	162	5,500	180	152	4,000	8.2	2.O.C.	15½	SU (2)	(2.9)	3.8	6.0	7.5	11.9	S.D.P.
AUSTIN																				
A.35	379	569/7	F. 4-I.L.	62.9×76.2	948	34	—	4,750	50	130	2,000	8.3	O.	5½	ZE (1)	4.6	6.4	10.8	16.5	S.D.P.
A.40	450	676/7	F. 4-I.L.	62.9×76.2	948	34	—	4,750	50	130	2,000	8.3	O.	6	ZE (1)	4.6	6.4	10.8	16.5	S.D.P.
A.55	538	808/7	F. 4-I.L.	73×89	1,489	51	—	4,250	81	135	2,000	8.3	O.	8¾	ZE (1)	4.3	6.2	10.4	17.0	S.D.P.
A.95	689	1,034/17	F. 6-I.L.	79.4×89	2,639	92	—	4,500	130	122	2,000	8.3	O.	16	ZE (1)	3.9	5.6	8.7	12.9	S.D.P.
A.105.....	823	1,235/17	F. 6-I.L.	79.4×89	2,639	102	—	4,600	142	133	2,400	8.3	O.	16	SU (2)	4.1	5.9	8.4	18.6	S.D.P.
AUSTIN-HEALEY																				
100 Six	817	1,226/17	F. 6-I.L.	79.4×89	2,639	121.5	117	4,750	149	139	3,000	8.5	O	12	SU (2)	3.9	5.2	7.5	12.0	S.D.P.
Sprite	445	668/17	F. 4-I.L.	62.9×76.2	948	42.5	—	5.000	52	135	3,300	8.3	O.	5½	SU (2)	4.2	5.9	10.0	15.3	S.D.P.
AUTO UNION																				
DKW 900.....	798	1,198/7	F. 3-I.L.	71×76	896	45	40	4,250	57	79	2,750	7.75	2-str.	10	SO (1)	4.3	6.2	10.5	18.0	S.D.P.
DKW 1000 coupé	850	1,276/7	F 3-I.L.	74×76	980	50	44.6	4.500	62	78	2,250	7.25	2-str.	10	SO (1)	4.1	5.8	9.8	16.9	S.D.P.
BENTLEY																				
Series S	3,695	5,543/17	F. 6-I.L.	95.3×114.3	4,887	—	—	—	—	—	—	8.0	O.I.	18	SU (2)	A. 3.4	4.9	9.0	13.1	F.C.
Continental chassis	2,635	3,294/8/6	F. 6-I.L.	95.3×114.3	4,887	—	—	—	—	—	—	8.0	O.I.	18	SU (2)	A. 2.9	4.3	7.7	11.2	F.C.
BERKELEY																				
Two-seater	432/9	650	F. 3-I.L.*	58×62	492	30	—	5,500	35.6	89	3.500	7 5	2-str.	5½	AM (3)	5.1	6.5	9.2	15.1	M.W.P.
B.M.W.																				
501 Limousine ...	1,638	2,458/7	F. 8-V.	74×75	2,580	110	—	4,800	132	126	2,000	7.0	O.	15½	SO (1)	4.2	6.2	9.9	16.0	S.D.P.
502 Limousine ...	1,792	2,687/7	F. 8-V.	74×75	2,580	115	—	4,600	133	127	2,000	7.0	O.	15½	SO (2)	4.2	6.2	9.9	16.0	S.D.P.
502 Super Limousine	2,165	3,248/17	F. 8-V.	82×75	3,168	162	—	4,800	163	127	2,000	7.3	O.	15½	SO (2)	4.2	6.2	9.9	16.0	S.D.P.
503 Cabriolet	3,500	5,251/7	F. 8-V.	82×75	3,168	162	—	4,800	163	127	2,000	7.3	O.	16½	SO (2)	3.9	5.7	9.2	14.7	S.D.P.
507 2-seater	3,100	4,651/7	F. 8-V.	82×75	3,168	173	—	5.000	173.5	135	2,000	7.8	O.	13	SO (2)	3.7	5.0	7 7	12 5	S.D.P.
BORGWARD																				
Isabella	830	1,246/7	F.4-I.L.	75×84.5	1,493	60	—	4,700	79.66	132	2,400	7.0	O.	10½	SO(1)	3.9	5.3	8.4	15.1	S.D.P.
Isabella TS	950	1,426/7	F.4-I.L.	75×84.5	1,493	75	—	5,200	84.6	140	2,800	8.2	O.	10½	SO (1)	3.9	5.3	8.4	15.1	S.D.P.
BRISTOL																				
406.....	2,995	4,493/17	F 6-I.L.	68.7×99.6	2,216	105	—	4,700	129	144.5	3,000	8.5	O.	18	SO (3)	(3.3)	4.3	5.5	7.8	15.5	S.D.P.
BUICK																				
Le Salve	—	—	F.8-V	104.8×86.4	5,970	250	—	4,400	384	158	2,400	10.5	O	16	ST (1)	3.6		4.0	7.7		S.D.P.
Invicta	—	—	F.8-V.	106.4×92.1	6,570	325	—	4,400	445	167	2,800	10.5	O.	16	CA (1)	A.			—		T.C.
Electra	—	—	F.8-V	106.4×92.1	6,570	325	—	4,400	445	167	2,800	10.5	O.	16	CA (1)	A.			—		T.C.

A.C.: Ace available with Bristol engine; Aceca available with A.C. engine. Opt. extra, front disc brakes both models. **ALFA ROMEO:** Giulietta Sprint and Spyder as so to Veloce specification. **ALLARD:** Opt. extra, automatic transmission. **ARMSTRONG SIDDELEY:** Opt. extra, automatic transmission on Model 346. **ASTON**

FOR 1959 CARS

Clutch or Coupling
S.D.P.=Single dry plate; M.W.P.=Multiple wet plate; M.D.P.=Multiple dry plate; T.C.=Torque converter; F.C.=Fluid coupling; Cent.=Centifrugal.

Brakes
H.=Hydraulic; M.=Mechanical; H.M.=Hydro-Mechanical; D.=Disc; D.F.=Discs at front; S.=Servo; V.S.=Vacuum servo.

Gear Lever Position
S.=Steering column; C.=Central; F.=Facia board; R.=Right side; D.=On floor, between driver's door and seat; S.L.=Selector lever.

Gears
A=Automatic.

Suspension
I.=Independent; C.=Coil spring; Tor.=Torsion bar; Tr.=Transverse spring; D.D.=de Dion axle; ½-E.=Half-elliptic; CA.=Cantilever; H.P.=Hydro-pneumatic; R.T.=Rubber in torsion.

Final Drive
Hy.=Hypoid; Sp.=Spiral; W.=Worm; C.=Chain; S.G.=Spur gears; V.B.=Vee belt.

Type of Clutch, Coupling, or Automatic Transmission	Gear Lever Position	Type of Final Drive and Final Drive Ratio	Top Gear M.P.H. per 1,000 R.P.M. (also on overdrive top)	Brakes: Type (e.g., Hydraulic; mechanical; servo or disc)	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc F.	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc R.	Area of Metal Rubbed by Brake Linings	Tyre Size	Voltage and Capacity of Battery	Type of Suspension and Springs F.	Type of Suspension and Springs R.	Wheelbase	Track F.	Track R.	Overall Length	Overall Width	Overall Height	Road Clearance	Number of Turns from Lock to Lock	Turning Circle	Maker's Kerb Weight incl. 5 Gals. Fuel
					in	in	sq in	in or mm				ft in	ft in	ft in	ft in	ft in	ft in	in		ft	lb
S.D.P.	C.	Sp. 4.88	14.4	H.	7 15/16 × 1 3/4	7 15/16 × 1 3/4	108	5.20—12	12(28)	I. Tr.	I. C.	6 6	3 10	3 10½	10 6½	4 6¼	4 7½	6½	3¼	28½	1,288
S.D.P.	C.	Sp. 4.55	15.6	H.	7 15/16 × 1 3/4	7 15/16 × 1 3/4	108	5.20—12	12(28)	I. Tr.	I. C.	6 6	3 10	3 10½	10 7½	4 5	3 11½	6½	3	28½	1,177
S.D.C.	C.	Sp. 4.33	16.4	H.	7 15/16 × 1 3/4	7 15/16 × 1 3/4	108	5.20—12	12(28)	I. Tr.	I. C.	6 6	3 10	3 10½	11 5	4 5	3 11½	5½	3	28½	1,230
S.D.P.	C.	Hy. 3.64	21.4	H.	11 × 1¾	11 × 1¾	242	5.50—16	12(60)	I. Tr.	I. Tr	7 6	4 2	4 2	12 8	4 11	4 1	6	2	36½	1,720
S.D.P.	C.	Hy. 3 64	21.4	H.	11 × 1¾	11 × 1¾	242	5.50—16	12(60)	I. Tr.	I. Tr.	7 6	4 2	4 2	13 4	5 1	4 4	5	2	36½	1,970
S.D.P.	S.	Hy. 4.55	17.0	H.	10½ × 2½	10 × 1¾	259	155—15	12(38)	I. C.	C.	7 10	4 2½	4 2	13 0	4 10	5 1½	6	3½	35	2,040
S.D.P.	S.	Hy. 4.55	17.0	H.	10½ × 2½	10 × 1¾	259	155—15	12(38)	I. C.	C.	7 10	4 2½	4 2	13 0	4 10	5 1½	6	3½	35	2,040
S.D.P.	C	Hy. 4.55	17.0	H.	10½ × 2	10 × 1¾	259	155—15	12(38)	I. C.	C.	7 10	4 2½	4 2	13 0	4 9	4 4	5½	3½	35	1,984
S.D.P.	C.	Hy. 4.55	17.0	H.	10½ × 2	10 × 1¾	259	155—15	12(38)	I. C.	C.	7 2½	4 2½	4 2	12 7	5 2	4 2	5½	3½	35	1,928
S.D.P.	S.	Hy. 4.77	18.8 (22.1)	H.	12 × 3	11 × 2½	380	165—400	12(50)	I. C.	C.	8 11	4 7	4 6	15 6	5 9	4 9	6	—	35	2,800
S.D.P.	C.	Hy. 4.55	19.6 (23.2)	H.	12 × 3	11 × 2½	380	165—400	12(50)	I. C.	C.	8 2½	4 7	4 6	14 9	5 5½	4 2	5	—	—	2,500
S.D.C.	C.	Hy. 3.54	22.0	H.	12 × 2½	12 × 2½	340	6.00—15	12(65)	I. Tor.	C.D.D	8 0	4 4	4 3	13 6	5 3	4 7	5	3	35	2,500
S.D.P.	C.	Hy. 3.77	20.52	H.	11 × 2½	11 × 2½	312	6.00—15	12(51)	I. C.	½-E.	9 3½	4 6⅝	4 6½	15 8½	5 6	5 0	7	3½	39½	3,248
T.C.	S.	Hy. 3.15	24.9	H.	10 × 2	10 × 1¾	235	8.00—14	12(60)	. C	C.	9 9	4 9½	4 11½	16 8	5 11½	4 10	8	4½	39½	3,462
T.C.	S.	Hy. 3.77	21.8	H.D.V.S.	11.82	12	570	6.70—16	12(64)	I. C.	½-E.	9 6	4 9½	4 9½	16 2	6 2	5 2	8½	3½	38	3,976
S.D.P.	S.	Hy. 4.45	19.4	H.V.S.	12 × 2½	12 × 2½	339	7.00—16	12(64)	I. C.	½-E.	11 1	4 8½	4 9½	17 8	6 0	5 6	9	3½	45	4,032
S.D.P.	C.	Hy. 3.54	22.6	H.D.V.S.	11½	11½	491	6.00—16	12(51)	I. C.	C.	8 2	4 6	4 5½	14 8½	5 6	4 3½	7	2.8	34	2,864
S.D.P.	C.	Hy. 3.77	21.5 (28.4)	H.D.F.	12	12 × 1¾	430	6.00—16	12(51)	I. C.	C.	8 3	4 6	4 6	14 3	5 5	4 6½	8	2½	35	2,884
S.D.P.	C.	Hy. 4.55	14.3	H.	7 × 1½	7 × 1½	110	5.20—13	12(38)	I. C.	½-E.	6 7½	3 9½	3 8½	11 4½	4 7	4 11	8½	—	35	1,520
S.D.P.	C.	Hy. 4.55	14.3	H.	8 × 1½	7 × 1½	118	5.20—13	12(43)	I. C.	½-E.	6 11½	3 11½	3 11	12 0	5 0	4 9	6½	—	35	1,620
S.D.P.	O.	Hy. 4.3	15.8	H.	9 × 1½	9 × 1½	198	5.90—13	12(38)	I. C.	½-E.	8 3½	4 0½	4 1	13 11	5 1½	5 0	6½	—	37½	2,310
S.D.P.	C.	Hy. 3.9	19.9	H.	11 × 2½	11 × 2½	312	6.40—15	12(51)	I. C.	½-E.	8 9½	4 3½	4 3½	15 1	5 4	5 2	7	3½	40	2,422
S.D.P.	C.	Hy. 3.9	19.9	H.	11 × 2½	11 × 2½	312	6.40—15	12(51)	I. C.	½-E.	8 9½	4 3½	4 3½	15 1	5 4	5 2	7	3½	40	2,422
S.D.P.	C.	Hy. 3.91	18.9	H.	11 × 2½	11 × 2½	312	5.90—15	12(50)	I. C.	½-E.	7 8	4 0½	4 2	13 1½	5 0½	4 2	4½	—	35	2,450
S.D.P.	C.	Hy. 4.22	15.4	H.	7 × 1¾	7 × 1¾	110	5.20—13	12(38)	I. C.	½-E.	6 8	3 9½	3 8½	11 5½	4 5	4 1½	5	2½	31	1,330
S.D.P.	S.	Sp. 4.7	17.2	H.	9 × 2	9 × 2	226	5.60—15	6(75)	I. Tr.	Tr.	8 0½	4 2½	4 5 7/16	14 2½	5 6½	4 10½	8	2½	36	2,075
S.D.P.	S.	Sp. 4.43	18.6	H.	9 × 2	9 × 2	226	5.60—15	6(75)	I. Tr.	Tr.	7 8½	4 2½	4 5 7/16	13 9½	5 4½	5 1½	8	2½	36	2,005
F.C.	S.	Hy. 3.42	25.0	H.M.S.	11¼ × 3	11¼ × 3	424	8.20—15	12(57)	I. C.	½-E.	10 3	4 10	5 0	17 7½	6 2½	5 4	7	4½	41½	4,390
F.C.	S.	Hy. 2.92	28.4	H.M.S.	11¼ × 3	11¼ × 3	424	8.00—15	12(57)	I. C.	½-E.	10 3	4 10	5 0	—	—	—	7	4½	41½	—
M.W.P.	C	C. 2.23	13 2	H.	7 × 1¼	7 × 1¼	110	5.20—12	12(32)	I. C.	I. C.	5 10	3 6½	3 6	10 3	4 2	3 10	7	2½	28	847
S.D.P.	C.	Hy. 4.23	17.9	H.	11¼ × 1¾	11¼ × 1¾	265	6.40—15	12(56)	I. Tor.	Tor.	9 8	4 4½	4 7½	15 5	5 10	5 0	7	3½	36	3,009
S.D.P.	C.	Hy. 4 23	17.9	H.	11¼ × 1¾	11¼ × 1¾	265	6.40—15	12(56)	I. Tor.	Tor.	9 8	4 4½	4 7½	15 5	5 10	5 0	7	3½	36	3 102
S.D.P.	C.	Hy. 4.23	19.6	H.	11¼ × 1¾	11¼ × 1¾	265	6.40—15	12(56)	I. Tor.	Tor.	9 8	4 4½	4 7½	15 5	5 10	5 0	7	3½	36	3,218
S.D.P.	C.	Hy. 3.90	20.4	H.	11¼ × 1¾	11¼ × 1¾	265	6 00—16	12(56)	I. Tor.	Tor	9 3½	4 7	4 8	15 7	5 7	4 7	7	3½	36	3,310
S.D.P.	C.	Hy. 3.70	21.3	H.	11¼ × 1¾	11¼ × 1¾	265	6 00—16	12(56)	I. Tor	Tor.	8 1½	4 9½	4 8	14 4½	5 5	4 1½	7	3	34½	2,778
S.D.P.	S.	Hy. 3.9	17.4	H.	9¼ × 2¼	9¼ × 2¼	258	5.90—13	6(84)	I. C.	I. C.	8 6½	4 4⅜	4 5⅛	14 5	5 7 7/16	4 9⅛	7	3½	34	2,248
S.D.P.	S.	Hy. 3.9	17.6	H	9¼ × 2¼	9¼ × 2¼	258	5.90—13	6(84)	I. C.	I. C.	8 8	4 5⅛	4 6⅛	14 7⅛	5 8 7/16	4 10 7/16	7	3½	34½	2,380
S.D.P.	C.	Hy. 4.27	18.8 (24.2)	H.D.V.S.	11¼	11¼	520	6.00—16	12(51)	I. Tr.	Tor.	9 6	4 5	4 8	16 4	5 8	5 0	6½	3	37½	3,010
S.D.P.	S.	Hy. 3.1	—	H.V.S.	12 × 2½	12 × 2½	340	7.60—15	12(70)	I. C.	C.	10 3	5 2⅜	5 0	18 1⅜	6 8⅜	4 9⅛	6	4	44	4,459
T.C.	S.	Hy. 3.23	—	H.V.S.	12 × 2½	12 × 2½	340	7.60—15	12(70)	I. C.	C.	10 3	5 2⅜	5 0	18 1⅜	6 8⅜	4 9⅛	6	4	44	4,595
T.C.	S.	Hy. 3.23	—	H.V.S.	12 × 2½	12 × 2½	340	8.00—15	12(70)	I. C.	C.	10 6½	5 2⅜	5 0	18 4⅜	6 8⅜	4 9⅛	6½	4	45½	4,908

MARTIN: Opt. extra, O/D on DB Mark III, Special series engine, 3 carb (195 b.h.p. nett) **AUSTIN:** A.55, Opt. extra, O/D; A.95, opt. extras, O/D or automatic transmission; A.105, opt. extra, automatic transmission. **AUSTIN-HEALEY:** Opt. extra, O/D on 100-Six **BMW:** 502, alternative 3.2-litre engine **BUICK:** Power steering

The Autocar BUYERS' GUIDE

Make and Model	U.K. Basic Price (Saloon unless otherwise indicated)	Total Price in U.K. including P.T.	Engine Position, No. and Arrangement of Cyls.	Bore and Stroke	Engine Capacity	Maximum Gross and Nett B.H.P. @ Spec. R.P.M.			Maximum Torque and B.M.E.P. @ Spec. R.P.M.			Compression Ratio (to 1)	Valve Position	Fuel Tank Capacity (Imp. Gals.)	Make and Number of Carburettors or Make and Type Fuel Injection	Forward Overall Gear Ratios including Overdrive if fitted	Type of Clutch, Coupling or Transmission
						Gross	Nett	R.P.M.	Torque	B.M.E.P.	R.P.M.						
	£ s	£ s d		mm	c.c.				lb ft	p.s.i.							
CADILLAC																	
6029	—	—	F.8-V.	101.6×98.4	6,393	325	—	4,800	430	166	3,100	10.5	O.	16	CA (1)	A.2.9 4.6 7.5 11.7	F.C.
6437	—	—	F.8-V.	101.6×98.4	6,393	325	—	4,800	430	166	3,100	10.5	O.	16	RO (1)	A.3.2 5.0 8.2 12.7	F.C.
6723	—	—	F.8-V.	101.6×98.4	6,393	325	—	4,800	430	166	3,100	10.5	O.	16	CA (1)	A.3.4 6.2 8.6 13.3	F.C.
CHEVROLET																	
Bel Air Six	1,410	2,116/7	F.6-I.L.	90.4×100.1	3,860	—	145	4,200	205	131	2,200	8.3	O.	17½	RO (1)	3.6 6.0 10.4	S.D.P.
Bel Air Eight	1,470/3/5	2,205/12/5	F. 8-V.	98.4×76.2	4,640	—	230	4,800	—	—	—	8.5	O.	17½	RO (1)	3.6 5.4 8.8	S.D.P.
Impala	—	—	F.8-V.	98.4×76.2	4,640	—	185	4,600	—	—	—	8.5	O.	17½	—	—	—
CHRYSLER																	
Imperial Le Baron	—	—	F.8-V.	106.2×95.3	6,768	—	—	—	—	—	—	10.0	O.	20	CA (1)	A. —	T.C.
CITROEN																	
2 c.v. (F.W.D.)	398	598/7	F.2-H.	66×62	425	14	—	3,500	17.4	102	2,500	7.0	O.	4¾	SO (1)	5.7 7.5 12.6 25.9	S.D.P.
ID.19 (F.W.D.)	998	1,498/7	F.4-I.L.	78×100	1,911	66	—	4,500	97.6	126	2,500	7.5	O.	14	SO (1)	3.3 4.8 7.4 13.8	S.D.P.
DS.19 (F.W.D.)	1,150	1,726/7	F.4-I.L.	78×100	1,911	75	—	4,500	101.3	144	3,000	7.5	O.	14	ZE (1)	3.3 4.8 7.0 13.8	S.D.P.
D.A.F.																	
600	—	—	F.2-H*	76×65	590	22	—	4,000	32.5	—	2,500	7.0	O.	6½	SO (1)	A. Between 4.4 and 20.1	CENT:
DAIMLER																	
Majestic	1,662/8/8	2,495	F.6-I.L.	86.4×107.9	3,794	147	—	4,400	209	136	2,800	7.5	O.	18	SU (2)	A.3.9 5.6 9.0	T.C.
One-O-Four	1,595/15/4	2,395	F.6-I.L.	82.6×107.9	3,468	137	—	4,400	189	135	2,400	7.6	O.	18	SU (2)	3.9 6.1 9 1 16.0	F.C.
DK.400A.	2,795/15/4	4,195	F.6-I.L.	95.2×107.9	4,617	167	—	3,800	260	139	2,800	7.0	O.	20	SU (2)	4.3 6.5 9.8 17.0	F.C.
D.B.																	
Rally HBR5	1,229/2	1,950	F.2-H.*	85×75	851	52	—	5,700	47	137	3,500	7.9	O.	13½	ZE (2)	(4.5) 5.8 8.7 15.6	S.D.P.
DE SOTO																	
Firesweep	—	—	F.8-V.	104.6×85.9	5.916	—	—	—	—	—	—	10.0	O.	17	CA (1)	A.	T.C.
DODGE																	
Custom Royal	—	—	F.8-V.	104.6×85.9	5,916	—	—	—	—	—	—	10.0	O.	17	ST (1)	A.	T.C.
EDSEL																	
Corsair	—	—	F.8-V.	101.6×83.7	5,441	225	—	4,600	318	144	2,800	9.5	O.	15	(1)	3.6 5.3 8.3	S.D.P.
ELVA																	
Courier	—	—	F.4-I.L.	73×89	1,489	72	—	5,500	77.4	128	3,500	8.3	O.	9	SU (2)	3.7 5.1 8.2 13.5	S.D.P.
Mark IV	—	—	F.4-I.L.	72.4×66.6	1,098	—	83	6,800	72	162	4,750	9.8	O C.	8	SU (2)	4.9 6.2 7.8 12.9	S.D.P.
FACEL VEGA																	
HK.500	3,150	4,726/7	F.8-V.	104.7×84.9	5.907	360	—	5,200	400	167	3,600	10.0	O.	22	ST (2)	3.3 4.6 6.5 11.4	S.D.P.
Excellence	—	—	F.8-V.	104.7×84.9	5.907	360	—	5,200	400	167	3,600	10.0	O.	26	ST (2)	3 3 4.6 6.5 11.4	S.D.P.
FAIRTHORPE																	
Atomota	426	640/7	F. 2-I.L.*	70×84	646	35	—	5,700	36.1	138	3,750	6.5	O.	6	AM (1)	4.6 6.6 11.2 19.5	S.D.P.
Electron Minor	479	719/17	F. 4-I.L.	63×76	948	38	—	5,000	49	127	2,800	8.25	O.	10	SO (1)	4.6 6.6 11.2 19.5	S.D.P.
Electron	769	1,154/17	F. 4-I.L.	72.4×66.6	1,097	93	—	7,000	72	162	4,700	10.5	O.C.	10	SU (2)	4.6 6.3 9.6 16.7	S.D.P.
FERRARI																	
250 G.T.	—	—	F. 12-V.	73×58.8	2,953	—	240	7,000	181	152	5,500	8.5	2.O.C.	22	WE (3)	3.7 4.6 6.2 9.3	S.D.P.
250 Testa Rossa	—	—	F. 12-V.	73×58.8	2,953	—	300	7,200	224	188	5,500	9.0	2.O.C.	31	WE (6)	4.0 5 0 6.2 9.3	S.D.P.
FIAT																	
500 Sport	370	556/7	R. 2-I.L.*	66×70	479	16.5	—	4,000	20.2	104	2,500	7.0	O.	4½	WE (1)	4.5 6.7 10.6 16.8	S.D.P.
600	432	649/7	R. 4-I.L.	60×56	633	22	—	4,600	28.9	114	2,400	7.5	O.	6	WE (1)	4.8 7.2 11.0 18.2	S.D.P.
600 Multipla	532	799/7	R. 4-I.L.	60×56	633	22	—	4,600	28.9	114	2,400	7.5	O.	6⅝	WE (1)	5.4 8.2 13.2 21.7	S.D.P.
1100	578/10	869/2	F. 4-I.L.	68×75	1,089	43	—	4,800	52.4	119	3,200	7.0	O.	8¼	SO (1)	4.3 6.8 10.2 16.6	S.D.P.
1200 Full-Light	798/10	1,199/2	F. 4-I.L.	72×75	1,221	55	—	5,300	60	122	3,000	8.0	O.	8¼	WE (1)	4.3 6.8 10.2 16.6	S.D.P.
1400B	774	1,162/7	F. 4-I.L.	82×66	1,395	58	—	4,600	65	115	3,700	7.5	O.	12	WE (1)	4.4 6.8 10.3 17.8	S.D.P.
1900B Full-Light	1,385	2,078/17	F. 4-I.L.	82×90	1,901	80	—	4,000	101	131	3,600	7.5	O.	12	WE (1)	(3.5) 4.3 6.8 9.7 13.6	S.D.P.
FORD																	
Popular	295	443/17	F. 4-I.L.	63.5×92.5	1,172	—	30	4,000	46.4	97.8	2,400	6.2	S.	7	ZE (1)	5.5 9.7 16.9	S.D.P.
Anglia	380	571/7	F. 4-I.L.	63.5×92.5	1,172	38	36	4,500	53	111	2,500	7.0	S.	7	SO (1)	4.4 8.9 17.2	S.D.P.
Prefect	415	623/17	F. 4-I.L.	63.5×92.5	1,172	38	36	4,500	53	111	2,500	7.0	S.	7	SO (1)	4.4 8.9 17.2	S.D.P.
Escort	434	652/7	F. 4-I.L.	63.5×92.5	1,172	38	36	4,500	53	111	2,500	7.0	S.	7	SO (1)	4.4 8.9 17.2	S.D.P.
Consul	545	818/17	F. 4-I.L.	82.6×79.5	1,703	61	59	4,400	93	132	2,300	7.8	O.	10½	ZE (1)	4.1 6.8 11.7	S.D.P.
Zephyr	610	916/7	F. 6-I.L.	82.6×79.5	2,553	90	85	4,400	137	129	2,000	7.8	O.	10½	ZE (1)	3.9 6.4 11.1	S.D.P.
Zodiac	675	1,013/17	F. 6-I.L.	82.6×79.5	2,553	90	85	4,400	137	129	2,000	7.8	O.	10½	ZE (1)	3.9 6.4 11.1	S.D.P.
FORD (U.S.)																	
Fairlane 500	—	—	F. 8-V.	101.6×83.7	5,441	240	—	4,600	320	146	2,800	9.5	O.	16½	— (1)	A. —	T.C.
Thunderbird	—	—	F. 8-V.	101.6×88.9	5,769	300	—	4,600	395	169	2,800	10.2	O.	16½	— (1)	A. —	T.C.
FORD TAUNUS																	
17M	—	—	F. 4-I.L.	84×76.5	1,698	67	60	4,400	96	139	2,200	7.1	O.	10	SO (1)	3.9 4.6 12.7	S.D.P.
12M	702	1,054/7	F. 4-I.L.	63.5×92.5	1,172	43	38	4,250	54.7	115	2,200	6.8	S.	7½	SO (1)	4.4 7.8 15.1	S.D.P.
FRAZER NASH																	
Continental Coupé	2,300	3,451/7	F. 8-V.	74×75	2,560	140	—	4,800	162	155	2,000	7.8	O.	15	SO (2)	3.4 4.7 7.1 11.6	S.D.P.
Sebring Spyder	2,300	3,451/7	F. 8-V.	74×75	2,560	140	—	4,800	162	155	2,000	7.8	O.	15	SO (2)	3.4 4.7 7.1 11.6	S.D.P.
FRISKY																	
Friskysport Coupé	332	499/7	R. 2-I.L.*	57×63.5	324	17	15	5,500	18	69	4,250	7.25	2-str.	3½	VI (1)	5.0 6.7 9.6 15.4	M.W.P.
Friskysprint	—	—	R. 2-I.L.*	58×62	492	30	—	5,700	35.6	89	3,500	8.25	2-str.	8	AM (3)	4.6 6.3 9.2 15.2	M.W.P.
GOGGOMOBIL																	
Regent 300	329	494/17	R. 2-I.L.*	58×56	293	—	17	6,000	16.6	70	3,800	6.0	2-str.	5½	BI (1)	5.1 7.2 11.0 20.6	M.W.P.
Mayfair 400 Coupé	428/13/4	644/7	R. 2-I.L.*	67×56	392	—	20	5,000	23.8	78	3,900	6.0	2-str.	5½	BI (1)	4.5 6.4 9.8 18.5	M.W.P.
Super 600	—	—	F. 2-H.*	72×72	579	—	20	4,000	28.9	—	3,500	6.5	O.	9	BI (2)	5.3 7.2 12.3 24.3	S.D.P.

CADILLAC: Power steering. **CHEVROLET:** Bel Air, Opt. extra, automatic transmission; Impala, opt. extras, automatic transmission, power brakes and power steering. **DAIMLER:** DK.400, Overall length, 18ft 5in. **EDSEL:** Opt. automatic transmission. **FACEL VEGA:** Opt. extra, automatic transmission. **FORD:** Anglia and Prefect, opt. extra, 2-pedal control. Zephyr and Zodiac, opt. extra, O/D and automatic transmission. **FORD** (U.S.A.): Fairlane, opt. extra, power steering.

FOR 1959 CARS . . .

Type of Clutch, Coupling, or Transmission	Gear Lever Position	Type of Final Drive and Final Drive Ratio	Top Gear M.P.H. per 1,000 R.P.M. (also on overdrive top)	Brakes: Type (e.g., Hydraulic; mechanical; servo or disc)	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc F.	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc R.	Area of Metal Rubbed by Brake Linings	Tyre Size	Voltage and Capacity of Battery	Type of Suspension and Springs F.	Type of Suspension and Springs R.	Wheelbase	Track F.	Track R.	Overall Length	Overall Width	Overall Height	Road Clearance	Number of Turns from Lock to Lock	Turning Circle	Maker's Kerb Weight incl. 5 Gals. Fuel
					in	in	sq in	in or mm				ft in	ft in	ft in	ft in	ft in	ft in	in		ft	lb
F.C.	S.	Hy. 2.94	—	H.V.S.	12×2¼	12×2¼	377	8.00—15	12(70)	I. C.	C.	10 10	5 1	5 1	18 9	6 9	4 0½	5½	—	—	5,080
F.C.	S.	Hy. 3.21	—	H.V.S.	12×2¼	12×2¼	377	8.00—15	12(70)	I. C.	C.	10 10	5 1	5 1	18 9	6 8½	4 6½	6½	—	—	5,062
F.C.	S.	Hy. 3.36	—	H.V.S.	12×2¼	12×2¼	377	8.20—15	12(70)	I. C.	C.	12 5½	5 1	5 1	20 4	6 8½	4 11½	7	—	—	5,618
S.D.P.	S.	Hy. 3.55	22.4	H.	11×2	11×1¾	259	7.50—14	12(53)	I. C.	C.	9 9½	4 10⅞	4 10⅞	17 5	6 5⅜	4 9	6⅞	5½	37½	3,622
S.D.P.	S.	Hy. 3.55	—	H.	11×2	11×1¾	259	7.50—14	12(53)	I. C.	C.	9 9½	4 10⅞	4 10⅞	17 5	6 5⅜	4 9	6⅞	5½	37½	3,623
—	—	—	—	H.	—	—	—	7.50—14	12(53)	I. C.	C.	9 11	5 0½	4 11½	17 6⅝	6 7⅛	4 8	6⅝	—	—	—
T.C.	F.	Hy. 2.93	—	H.V.S.	—	—	—	9.50—14	12(70)	I. Tor.	½-E.	10 9	5 1	5 2⅜	18 10½	6 9½	4 9	5⅞	—	46½	4,500
S.D.P.	F.	Sp. 3.87	11.9	H.	7⅛×1⅜	7⅛×1⅜	133	135—400	6(57)	I. C.	I. C.	7 9½	4 1⅜	4 1⅜	12 4⅜	4 10½	5 3	7½	2½	32½	1,120
S.D.P.	S.	Sp. 3.89	23	H.D.F.	11⅞	10×1⅜	312	165—400	12(57)	I. H.P.	I. H.P	10 3	4 11	4 3½	15 9	5 10½	4 10	6½	4	36	2,576
S.D.P.	F.	Sp. 3.89	23	H.S.D.F.	11⅞	10×1⅜	312	165—400	12(57)	I. H.P.	I. H.P.	10 3	4 11	4 3½	15 9	5 10½	4 10	6½	3	36	2,688
CENT:	S.	V.8.	—	H.	7×1¾	7×1¾	105	5.20—12	6(56)	Tr.	C.	6 9	3 11	3 11	11 10	4 9	4 6	7	2½	28	1,664
T.C.	S.	Hy. 3.92	21.1	H.S.D.	12¼	12	565	6.50—16	12(64)	I. C.	½-E.	9 6	4 8	4 9	16 4	6 1½	5 2⅜	7	4½	42	3,976
F.C.	S.	Hy. 3.92	21.1	H.V.S.	12×3	12×3	453	6.50—16	12(64)	I. C.	½-E.	9 6	4 8	4 9	16 4	5 10½	5 3	7	4½	42	4,144
F.C.	S.	Hy. 4.27	20.8	H.V.S.	13×2½	13×2½	409	7.50—16	12(64)	I. C.	½-E.	10 10	5 0	5 3	18 1	6 5	5 10⅜	7	4	44	4,760
S.D.P.	C.	Sp. 5.81	16.7	H.	10×1¾	9×1⅜	—	145—400	12(45)	I. Tr.	I. Tor.	7 0	4 0	4 0	12 11½	5 2½	4 4⅜	6⅜	3	31	1,287
T.C.	F.	3.31	—	H.V.S.	—	—	—	8.00—14	12(60)	I. Tor.	½-E.	10 2	5 1	4 11⅞	17 11½	6 6½	4 7½	5½	—	43½	3,665
T.C.	F.	2.93	—	H.V.S.	—	—	—	8.00—14	12(60)	I. Tor.	½-E.	10 2	5 1	4 11⅞	18 1⅜	6 6½	4 6½	5⅜	—	43½	3,635
S.D.P.	S.	Hy. 3.56	—	H.	11×3	11×2	345	8.00—14	12(55)	I. C.	½-E.	10 0	4 11	4 8⅜	17 6⅜	6 7½	4 8	—	—	—	—
S.D.P.	C.	3.7	19.63	H.	9×1½	8×1½	161	5.20—14	12(43)	I. C.	C.	7 6	4 2	4 2	12 10	4 11½	3 10	6	—	35	999
S.D.P.	C.	4.9	—	H.	10×2¼	10×1¾	267	4.50—15F 5.00—15R	12(31)	I. C.	I. C.	7 0	3 10½	3 10½	11 6	—	2 3½	5	—	42	917
S.D.P.	C.	Hy. 3.31	27.3	H.S.D.	12	11¼	572	6.70—15	12	I. C.	½-E.	8 8⅜	4 8	4 9	15 1	5 10⅜	4 4	7	4	36	3,750
S.D.P.	C.	Hy. 3.31	25.0	H.V.S.	11½×3½	11×2	386	7.10—15	12	I. C.	½-E.	10 4⅜	4 8	4 9	17 2⅜	6 0	4 6	7	4	40	4,230
S.D.P.	C.	Hy.	15.2	H.	7×1¾	7×1¼	110	5.20—13	12(32)	I. C.	C.	6 9	4 1	4 0½	10 9	5 0	4 0	7	2½	27	945
S.D.P.	C.	Hy.	16.3	H.	7×1¾	7×1¼	110	5.60—13	12(32)	I. C.	C.	6 9	4 1	4 0½	10 9	4 10	3 10	7	2½	27	965
S.D.P.	C.	Hy.	19.1	H.D.F.	11	10×2¼	283	5.60—13	12(32)	I. C.	C.	6 10	4 0	3 9½	11 6	4 10	3 10	7	2½	32	1,210
S.D.P.	C.	Sp. 3.66	20.1	H.	14×2½	14×2½	440	6.00—16	12(64)	I. C.	½-E	8 6½	4 5½	4 5	14 7½	5 6	4 4⅜	6½	3	36	2,703
S.D.P.	C.	Sp. 4.00	21.8	H.	14×2½	14×2½	440	F.5.50—16 R.6.00—16	12(23)	I. C.	C.	7 8½	4 3½	4 1⅜	13 8½	5 1	3 3⅜	5	2½	36	1,804
S.D.P.	C.	Sp. 5.13	12.82	H.	6¹¹⁄₁₆×1⅛	6¹¹⁄₁₆×1⅛	95	125—12	12(32)	I. Tr.	I. C.	6 0⁷⁄₁₆	3 8½	3 8⅜	9 9	4 4	4 4½	5½	3½	28½	1,036
S.D.P.	C.	Sp. 5.38	12.89	H.	7⁹⁄₁₆×1⅜	7¼×1⅜	108	5.20—12	12(32)	I. Tr.	I. C.	6 6⅜	3 9½	3 9½	10 9⅜	4 6⅜	4 7⅜	6⅜	3½	28½	1,288
S.D.P.	C.	Sp. 6.43	11.55	H.	8¼×1⅛	8¼×1⅛	164	5.20—12	12(32)	I. C.	I. C.	6 6⅜	4 0⅜	3 11½	11 7⅜	4 9½	5 2⅜	5⅞	3½	29	1,596
S.D.P.	S.	Hy. 4.3	15.87	H.	9½×1⅜	9½×1⅜	171	5.20—14	12(32)	I. C.	½-E.	7 8½	4 0½	3 11½	12 10⅜	4 9⅞	4 10⅜	5⅞	3½	34½	1,940
S.D.P.	S.	Hy. 4.3	16.11	H.	9½×1⅜	9½×1⅜	171	5.20—14	12(40)	I. C.	½-E.	7 8½	4 0½	3 11½	12 10⅜	4 9⅞	4 9½	5⅞	3½	34½	2,050
S.D.P.	S.	Hy. 4.44	16.05	H.	9¹¹⁄₁₆×2⅛	9¹¹⁄₁₆×2⅛	254	5.90—14	12(40)	I. C.	½-E.	8 8⅜	4 4½	4 4	14 2½	5 5½	5 2	6	3	35	2,492
S.D.P.	S.	Hy. 4.3	17.2(21.1)	H.S.	9½×2½	9½×2½	264	6.40—14	12(40)	I. C.	½-E.	8 8⅜	4 4⅜	4 4½	14 2½	5 5⅞	5 2⅜	7⅛	3	35	2,968
S.D.P.	C.	Sp. 5.5	14.0	M.	10×1½	10×1½	189	4.50—17	6(85)	Tr. ½-E	Tr. ½-E.	7 6	3 9	3 9	12 8½	4 8½	5 4	8⅜	2	34½	1,647
S.D.P.	C.	Sp. 4.4	15.0	H.	8×1½	8×1½	129	5.20—13	12(40)	I. C.	½-E.	7 3	4 0	3 11½	12 5⅜	5 0⅜	4 11	7	2	34½	1,684
S.D.P.	C.	Sp. 4.4	15.0	H.	8×1½	8×1½	129	5.20—13	12(40)	I. C.	½-E.	7 3	4 0	3 11½	12 5⅜	5 0⅜	4 11	7	2	34½	1,736
S.D.P.	C.	Sp. 4.4	15.3	H.	8×1½	8×1½	129	5.60—13	13(40)	I. C.	½-E.	7 3	4 0	3 11½	11 8⅜	5 0⅜	5 3	7½	2	34½	1,834
S.D.P.	S.	Hy. 4.11	16.9	H.	9×2½	9×1⅜	241	5.90—13	12(45)	I. C.	½-E.	8 9½	4 5	4 4	14 4½	5 8½	5 2	6½	3½	35	2,467
S.D.P.	S.	Hy. 3.9	18.4	H.	9×2½	9×1⅜	241	6.40—13	12(57)	I. C.	½-E.	8 11	4 5	4 4	14 10½	5 8⅜	5 2	6⅝	3½	36	2,654
S.D.P.	S.	Hy. 3.9	18.4	H.	9×2½	9×1⅜	241	6.40—13	12(57)	I. C.	½-E.	8 11	4 5	4 4	14 10½	5 8⅜	5 2	6⅝	3½	36	2,701
T.C.	S.	Hy. 2.9	—	H.	11×3	11×2	345	7.50—14	12(65)	I. C.	½-E.	9 10	4 11	4 8⅜	17 3	6 2	4 8	—	—	—	3,779
T.C.	S.	Hy. —	—	H.	—	—	—	8.00—14	12(55)	I. C.	½-E.	9 5	5 0	4 9	17 1⅜	6 5	4 5⅛	6½	—	40	3,894
S.D.P.	S.	Hy. 3.9	18.0	H.	9×—	9×—	—	6.40—13	6(84)	I. C.	½-E.	8 7	4 2	4 2	14 4½	5 6	4 11	6½	—	34½	3,088
S.D.P.	S.	Hy. 4.44	14.9	H.	7⅛×—	7⅛×—	—	5.60—13	6(84)	I. C.	½-E.	8 2	4 0	4 0	13 4	5 2	5 1	6½	—	33	1,909
S.D.P.	C.	Sp. 3.42	23.0	H.	11×2½	11×2½	315	6.00—16	12(72)	I. C.	DD.Tor.	8 3	4 2	4 5½	13 7	5 7	4 6	7	2½	27	2,016
S.D.P.	C.	Sp. 3.42	23.0	H.	11×2½	11×2½	315	6.00—16	12(72)	I. C.	DD.Tor.	8 3	4 2	4 5½	13 7	5 7	—	7	2½	27	1,848
M.W.P.	C.	C. 5.03	12.0	H.	7×1¾	7×1¾	110	4.40—10	12(28)	I. Tor.	C.	5 0	4 0½	2 8	9 1½	4 7½	4 0	6½	2½	25	745
M.W.P.	C.	C. —	13.4	H.	7×1¾	7×1¾	110	5.20—10	12(28)	I. C.	I. C.	5 8	4 0⅜	3 11	10 2½	4 8	3 1½	5	2½	24	690
M.W.P.	C.	Sp. —	10.4	H.	7⅛×1⅜	7⅛×1⅜	106	4.40—10	12(18)	I. C.	I. C.	5 10⅜	3 7	3 7	9 6½	4 2½	4 3½	7⅜	2⅜	24½	915
M.W.P.	F.	Sp. —	11.7	H.	7⅛×1⅜	7⅛×1⅜	106	4.40—10	12(18)	I. C.	I. C.	5 10⅜	3 7	3 7	10 0	4 6	4 1	7⅜	2⅜	24⅜	995
S.D.P.	C.	— —	—	H.	9×—	9×—	—	4.80—12	12(32)	I. C.	½-E.	6 7	3 11½	3 10	11 2	4 10	4 6½	7½	—	—	1,408

Thunderbird, opt. extras, automatic transmission, power steering, and power brakes. **FORD TAUNUS:** 17M, opt. extras, O/D and automatic clutch. **FRAZER NASH:** Opt. extra, 3,168 c.c. engine. **GOGGOMOBIL:** Opt. extras. Regent models, automatic clutch; Mayfair preselector. Super 600, alternative 700 c.c. engine.

The Autocar BUYERS' GUIDE

Make and Model	U.K. Basic Price (Saloon unless otherwise indicated)	Total Price in U.K. including P.T.	Engine Position, No. and Arrangement of Cyls.	Bore and Stroke	Engine Capacity	Maximum Gross and Nett B.H.P. @ Spec. R.P.M.			Maximum Torque and B.M.E.P. @ Spec. R.P.M.			Compression Ratio (to 1)	Valve Position	Fuel Tank Capacity (Imp. Gals.)	Make and Number of Carburettors or Make and Type Fuel Injection	Forward Overall Gear Ratios including Overdrive if fitted				Type of Clutch, Automatic or Torque Converter
						Gross	Nett	R.P.M.	Torque	B.M.E.P.	R.P.M.									
	£ s	£ s d		mm	c.c.				lb ft	p.s.i.										
HILLMAN																				
Minx Series III ...	529	794/17	F. 4-l.L.	79×76.2	1,494	52.5	49.2	4,400	78	129	2,100	8.5	O.	7½	ZE (1)	4.6	6.8	11.3	14.5	S.D.P.
Husky	465	698/17	F. 4-l.L.	76.2×76.2	1,390	43	—	4,000	66	118	1,600	7.0	O.	6½	ZE (1)	4.8	7.1	11.8	17.0	S.D.P.
HUMBER																				
Hawk	840	1,261/7	F. 4-l.L.	81×110	2,267	78	—	4,400	120	131	2,300	7.5	O.	12½	ZE (1)	4.2	6.3	10.4	13.5	S.D.P.
Super Snipe	995	1,493/17	F. 6-l.L.	82.6×82.6	2,651	112	105	5,000	138.3	129	1,600	7.5	O.	12½	ST (1)	4.6	7.3	12.8		S.D.P.
ISETTA																				
300 Standard	232/8/5	349/19/6	R. 1*	72×73	298	—	13	5,200	—	—	—	7.0	O.	2¾	BI (1)	6.1	8.2	12.2	23.2	S.D.P.
BMW600	449	676	R. 2-H.*	74×68	285	—	19.5	4,000	28.6	122	2,500	6.5	O.	5	SO (1)	4.6	6.9	10.5	19.2	S.D.P.
JAGUAR																				
2.4	996	1,495/7	F. 6-l.L.	83×76.5	2,483	112	—	5,750	140	140	2,000	8.0	2 O.C.	12	SO (2)	4.3	5.8	8.5	14.4	S.D.P.
3.4	1,114	1,672/7	F. 6-l.L.	83×106	3,442	210	—	5,500	215	155	3,000	8.0	2 O.C.	12	SU (2)	3.5	4.8	7.0	14.9	S.D.P.
Mark VIII	1,219	1,829/17	F. 6-l.L.	83×106	3,442	210	—	5,500	215	155	3,000	8.0	2 O.C.	17	SU (2)	4.3	5.2	7.5	12.7	S.D.P.
Mark IX	1,329	1,994/17	F. 6-l.L.	87×106	3,781	220	—	5,500	240	157	3,000	8.0	2 O.C.	17	SU (2)	4.3	5.2	7.5	12.7	S.D.P.
XK150 coupé	1,175	1,763/17	F. 6-l.L.	83×106	3,442	210	—	5,500	215	155	3,000	8.0	2 O.C.	14	SU (2)	3.5	4.3	6.2	10.6	S.D.P.
JENSEN																				
541 R	1,910	2,866/7	F. 6-l.L.	87×111	3,993	150	—	4,100	227	140	2,400	7.6	O.	15	SU (2)	(2.8)	3.5	4.8	7.0 (2.8)	S.D.P.
541	1,750	2,626/7	F. 6-l.L.	87×111	3,993	—	—	—	—	—	—	7.4	O.	15	SU (3)	(2.8)	3.5	5.1	8.1 (2.8)	S.D.P.
LANCIA																				
Appia	1,125	1,688/17	F. 4-V.	68×75	1,090	43.5	—	4,800	56	137	3,000	7.4	O.	10½	SO (1)	4.2	6.4	10.0	17.3	S.D.P.
Aurelia G.T.	2,230	3,346/7	F. 6-V.	78×85.5	2,451	118	—	5,000	127	128	3,500	8.4	O.	16½	WE (1)	3.7	5.8	7.6	11.4	S.D.P.
Flaminia	2,500	3,751/7	F. 6-V.	80×81.5	2,458	112	—	4,800	141	142	3,000	7.9	O	12½	SO (1)	3.9	5.9	8.7	12.9	S.D.P.
LINCOLN																				
Continental Mark IV	—	—	F. 8-V.	109.2×94	7,047	375	—	4,800	489	—	3,100	10.5	O.	20	— (1)	A.		—		T.C.
LOTUS																				
Elite	1,300	1,951/7	F. 4-l.L.	76.2×66.6	1,216	—	75	6,100	72	149	4,400	8.5	O.C.	9	SU (1)	4.6	6.2	10.1	16.5	S.D.P.
Fifteen	—	—	F. 4-l.L.	81.2×71.1	1,475	—	146	7,200	110	190	6,500	10.1	2 O.C.	19	SU (2)	4.2	5.2	7.0	10.5	M.D.P.
Eleven Le Mans 85	1,690	2,501/7	F. 4-l.L.	72.4×66.6	1,098	—	83	6,800	76	172	4,400	9.8	O.C.	12	SU (2)	4.5	5.5	7.5	10.1	S.D.P.
Seven	690	1,036/7	F. 4-l.L.	63.5×92.5	1,172	—	36	4,500	52	110	2,500	7.0	S.	7	ZE (1)	4.8	8.4	15.4		S.D.P.
MERCEDES-BENZ																				
180	1,195	1,793/17	F. 4-l.L.	85×83.6	1,897	74	—	4,700	104	135	2,800	6.8	O.C.	12½	SO (1)	3.9	6.0	9.3	15.8	S.D.P.
180D (diesel)	1,259	1,889/17	F. 4-l.L.	75×100	1,767	46	—	3,200	76.7	107	2,000	19.0	O.	12½	BO	3.7	5.7	8.8	15.0	S.D.P.
190	1,250	1,876/7	F. 4-l.L.	85×83.6	1,897	84	—	4,800	107	139	2,800	7.5	O.C.	12½	SO (1)	4.1	6.3	9.8	16.6	S.D.P.
190D (diesel)	1,360	2,041/7	F. 4-l.L.	85×83.6	1,897	55	—	4,000	83.2	109	2,200	21.0	O.	12½	BO	3.7	5.7	8.8	15.0	S.D.P.
190SL Roadster ...	1,930	2,896/7	F. 4-l.L.	85×83.6	1,897	105	—	5,700	107	139	2,800	8.5	O.C.	12½	SO (2)	3.9	5.9	9.1	13.7	S.D.P.
219	1,430	2,146/7	F. 6-l.L.	80×72.8	2,195	100	—	5,000	130	146	2,500	8.7	O.C.	12½	SO (1)	3.9	5.9	9.1	13.7	S.D.P.
220S	1,595	2,393/17	F. 6-l.L.	80×72.8	2,195	120	—	5,000	137	154	3,800	8.7	O.C.	14	SO (2)	4.1	6.2	9.5	14.4	S.D.P.
220SE	1,862	2,794/7	F. 6-l.L.	80×72.8	2,195	130	—	5,000	146.1	165	3,800	8.7	O.C.	16½	BO	4.1	6.2	9.5	14.4	S.D.P.
300	3,600	5,401/7	F. 6-l.L.	85×88	2,996	180	—	5,500	191	157	4,500	8.55	O.C.	15½	BO	A.	5.1	7.4	11.8	—
300SL Roadster ...	3,750	5,626/7	F. 6-l.L.	85×88	2,996	250	—	6,200	228	188	5,000	9.5	O.C	28½	BO	3.6	5.1	7.2	12.2	S.D.P.
MERCURY																				
Montclair	—	—	F. 8-V.	109.2×84	6,281	330	—	4,800	425	167	3,000	10.5	O.	20	(1)	A.		—		—
METROPOLITAN																				
1500	498/10	749/2	F. 4-l.L.	73×89	1,489	—	51	4,250	81	134	2,000	8.3	O.	8¾	ZE (1)	4.2	6.3	11.9		S.D.P.
MESSERSCHMITT																				
T G.500	435	653/17	R.2-l.L.*	67×58	490	20	—	5,000	—	—	—	6.5	2-str	6½	BI (1)	3.4	4.8	8.2	15.2	M.D.P.
M.G.																				
MGA 2-seater	663	995/17	F. 4-l.L.	73×89	1,489	72	—	5,500	77.4	130	3,500	8.3	O.	10	SU (2)	4.3	5.9	9.5	15.7	S.D.P.
MGA Twin Cam ...	843	1,265/17	F. 4-l.L.	75.4×89	1,588	108	—	6,700	105	163	4,500	9.9	2 O.C.	10	SU (2)	4.3	5.9	9.5	15.7	S.D.P.
Magnette	714	1,072/7	F. 4-l.L	73×89	1,489	68	62	5,400	83	138	3,000	8.3	O.	9½	SU (2)	4.6	6.3	10.1	16.6	S.D.P.
MORGAN																				
4/4 Series II	498	748/7	F. 4-l.L.	63.5×92.5	1,172	38	36	4,400	53	111	2,150	7.0	S.	8	ZE (1)	4.4	8.9	17.3		S.D.P.
Plus 4	645	968/17	F. 4-l.L.	83×92	1,991	100	—	5,000	117.5	145	3,000	8.5	O.	11	SU (2)	3.7	5.2	7.4	12.9	S.D.P.
MORRIS																				
Minor 1000 2-door	416	625/7	F. 4-l.L.	63×76	948	37	35	4,800	50	130	2,500	8.3	O.	6½	SU (1)	4.6	6.4	10.8	16.5	S.D.P.
Cowley 1500	555/10	834/12	F. 4-l.L.	73×89	1,489	55	52	4,400	78	130	2,400	8.3	O.	12	SU (1)	4.9	7.3	11.7	19.2	S.D.P.
Oxford Series III	589	884/17	F. 4-l.L.	73×89	1,489	55	52	4,400	78	130	2,400	8.3	O.	12	SU (1)	4.9	7.3	11.7	19.2	S.D.P.
NOBEL 200	—	—	F.1-*	65×58	200	—	10.2	5.250	—	—	—	6.3	2-str	—	— (1)			—		M.W.P.
NSU																				
Prince	—	—	R. 2-l.L.*	75×66	583	—	20	4,600	29.6	125	2,300	6.8	O.C.	5½	BI (1)	4.4	6.2	9.8	18.3	S.D.C.
Sports coupé	—	—	R. 2-l.L.*	75×66	583	—	30	5,700	—	—	—	6.8	O.C.	—	BI (1)	4.4	6.2	9.8	18.3	S.D.C.
OLDSMOBILE																				
Super 88	1,840	2,761/7	F. 8-V.	101.6×93.7	6,077	305	—	4,600	—	—	—	10.0	O.	17½	RO (1)	3.6	4.1	7.8		S.D.P.
Super 88 coupé ...	—	—	F. 8-V.	104.8×93.7	6,462	315	—	4,680	427	167	2,800	9.7	O.	17½	—			—		—
PANHARD																				
Z.16	732	1,099/7	F. 2-H.*	85×75	851	42	—	5,300	41	119	2,500	7.2	O.	9½	ZE (1)	4.5	6.1	9.3	16.5	S.D.P.
PEERLESS																				
G.T. 2-litre	998	1,498/7	F. 4-l.L.	83×92	1,991	100	—	5,000	117.5	145	3,000	8.5	O.	14	SU (2)	3.7	4.9	7.4	12.5	S.D.P.
PEUGEOT																				
203	633/16	952/1	F. 4-l.L.	75×73	1,290	45	—	4,500	59.3	114	2,500	7.0	O.	11	SO (1)	4.3	5.7	9.7	18.6	S.D.P.
403	796/3	1,195/11	F. 4-l.L.	80×73	1,468	58	—	4,900	74.5	125	2,500	7.0	O.	10½	SO (1)	4.3	5.7	9.7	18.6	S.D.P.
PLYMOUTH																				
Belvedere	—	—	F. 8-V.	99.3×84.1	5,212	—	225	4,400	—	—	—	9.0	O	17	CA (1)	A.		—		T.C.

HILLMAN: Opt. extra, 2-pedal control. **HUMBER:** Hawk, opt. extras, O/D and automatic transmission. Super Snipe, opt. extras, O/D automatic transmission, power steering. **ISETTA:** 300 de luxe, opt. extra, 2-pedal control. **JAGUAR:** 2.4 and 3.4, opt. extras, O/D, automatic transmission, disc brakes. Mark VIII, Mark IX

FOR 1959 CARS . . .

Type of Clutch, Automatic, or Transmission	Gear Lever Position	Type of Final Drive and Final Drive Ratio	Top Gear M.P.H. per 1,000 R.P.M. (also on overdrive top)	Brakes: Type (e.g., Hydraulic; mechanical; servo or disc)	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc F.	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc R.	Area of Metal Rubbed by Brake Linings	Tyre Size	Voltage and Capacity of Battery	Type of Suspension and Springs F.	Type of Suspension and Springs R.	Wheelbase	Track F.	Track R.	Overall Length	Overall Width	Overall Height	Road Clearance	Number of Turns from Lock to Lock	Turning Circle	Maker's Kerb Weight incl. 5 Gals. Fuel
					in	in	sq in	in or mm		F.	R.	ft in	ft in	ft in	ft in	ft in	ft in	in		ft	lb
S.D.P.	S.	Sp. 4.55	16.1	H.	8×1¼	8×1¼	151	5.60—15	12(38)	I. C.	¼-E.	8 0	4 1	4 0½	13 7	5 1	4 11¼	7	3	36	2,221
S.D.P.	S.	Sp. 4.8	15.1	H.	8×1½	8×1½	151	5.00—15	12(38)	I. C.	¼-E.	7 2	4 1	4 0½	12 6	5 1	5 1	6½	3	31½	2,106
S.D.P.	S.	Hy. 4.22	17.0	H.	10×2¼	10×2¼	283	6.40—15	12(51)	I. C.	¼-E.	9 2	4 8	4 7½	15 4½	5 9½	5 1	7	3½	39	3,160
S.D.P.	S.	Hy. 4.55	17.4	H.S.	11×2¼	11×2¼	311	6.70—15	12(51)	I. C.	¼-E.	9 2	4 8½	4 7½	15 4½	5 9½	5 1	7	4	38	3,351
S.D.P.	R.	C. 2.31	9.3	H.	7×1	7×1	88	4.40—10	12(32)	I. C.	¼-E.	4 10	3 11½	1 8½	7 6	4 6¼	4 4½	6½	—	30	770
S.D.P.	C.	Sp. 5.43	12.4	H.	7×1½	7×1½	110	5.20—10	12(32)	I. C.	I. C.	6 4	4 1	3 10½	9 8	4 6	4 8	6½	—	26	1,121
S.D.P.	C.	Hy. 4.27	18.1	H.V.S.	11¼×2¼	11¼×2¼	315	6.40—15	12(51)	I. C	C. A.	8 11⅜	4 6¼	4 2½	15 1	5 6⅜	4 9½	7	3½	33½	3,060
S.D.P.	C.	Hy. 3.54	21.9	H.V.S.	11¼×2¼	11¼×2¼	315	6.40—15	12(51)	I. C.	C. A.	8 11⅜	4 6⅜	4 2¼	15 1	5 6⅜	4 9½	7	3½	33½	3,176
S.D.P.	C.	Hy. 4.27	19.4	H.V.S.	12×2¼	12×2¼	340	6.70—16	12(64)	I. C.	¼-E.	10 0	4 8½	4 10	16 4½	6 1	5 3	7½	5	36	3,932
S.D.P.	C.	Hy. 4.27	19.4	H.D.V.S.	12½	12	572	6.70—16	12(64)	I. C.	¼-E.	10 0	4 8½	4 10	16 4½	6 1	5 3	7½	3½	36	4,058
S.D.P.	C.	Hy. 3.54	22.9	H.V.S.	12×2¼	12×2¼	340	6.00—16	12(64)	I. C.	¼-E.	8 6	4 3⅜	4 3⅜	14 9	5 4½	4 7	7½	2½	33	3,172
S.D.P.	C.	Hy. 3.54	24.6 (30)	H.D.V.S.	11¼	11¼	509	6.40—15	12(68)	I. C.	¼-E.	8 9	4 3⅞	4 3⅜	14 10	5 3	4 5	7	2½	34	—
S.D.P.	C.	Hy. 3.54	24.6 (30)	H.D.V.S.	11¼	11¼	509	6.40—15	12(68)	I. C.	¼-E.	8 9	4 3⅞	4 3⅜	14 10	5 3	4 5	7	2½	34	—
S.D.P.	S.	Hy. 4.22	16.6	H.	9×2	9×2	226	155—15	12(35)	I. C	¼-E.	8 2⅞	3 10⅜	3 10½	13 2	4 8	4 7½	5½	3	32	1,860
S.D.P.	S.	Hy. 3.7	20.6	H.	11¼×2¼	11¼×2¼	406	165—400	12(50)	I. C.	D.D.-¼-E.	8 8⅜	4 2⅜	4 3½	14 1	5 1	4 5½	6	3¼	33	2,794
S.D.P.	S.	Hy. 3.91	21.0	H.	11¼×2¼	11×2¼	395	165—400	12(42)	I. C.	D.D.-¼-E.	9 5	4 6	4 6	15 11	5 9	4 9½	5½	3½	40	3,186
T.C.	S.	Hy. 3.07	—	H.V.S.	12×2½	12×2	339	9.50—14	12(70)	I. C.	¼-E.	10 11	—	—	18 9	6 8	4 8½	—	—	—	—
S.D.P.	C.	Hy. 4.55	16.7	H.D.	9½	9½	358	4.90—15	12(31)	I. C.	I. C.	7 4	3 11	3 11	12 0	4 10	3 10	5	2	36	1,246
M.D.P.	C.	Hy. 4.22	18.6	H.D.	9½	9½	358	4.50—15F 5.50—15R	12(31)	I. C.	I. C.	7 4	3 11	4 0	11 5	5 0	2 0	5½	1½	39½	980
S.D.P.	C.	Sp. 4.87	15.6	H.	8×1¼	8×1¼	126	4.90—15	12(31)	I. C	C.	7 4	3 11	3 11	10 3	4 5	2 3	5	1½	36	808
S.D.P.	C.	Hy. 4.55	18.0	H.D.	9	9	—	4.50—15	12(31)	I. C	I. C.	7 2	3 10½	3 11	11 2	5 0	3 1	5	1½	39½	854
S.D.P.	S.	Hy. 3.9	17.9	H.	9⅛×2	9⅛×2	228	6.40—13	12(56)	I. C.	I. C.	8 8⅜	4 8	4 9½	14 7⅜	5 8½	5 1½	7⅜	—	36	2,409
S.D.P.	S.	Hy. 3.7.	18.5	H.	9⅛×2	9⅛×2	228	6.40—13	12(84)	I. C.	I. C.	8 8⅜	4 8	4 9½	14 7⅜	5 8½	5 1½	7⅜	—	36	2,519
S.D.P.	S.	Hy. 4.1	17.0	H.	9⅛×2⅜	9⅛×2⅜	292	6.40—13	12(56)	I. C.	I. C.	8 8⅜	4 8½	4 10	14 8½	5 8½	5 1½	8	—	35	2,497
S.D.P.	S.	Hy. 3.7	18.5	H.	9⅛×2⅜	9⅛×2⅜	292	6.40—13	12(84)	I. C.	I. C.	8 8⅜	4 8	4 9½	14 8⅜	5 8½	5 1½	7⅜	—	35	2,690
S.D.P.	C.	Hy. 3.9	17.9	H.S.	9⅛×2⅜	9⅛×2⅜	292	6.40—13	12(56)	I. C.	I. C.	7 10½	4 8	4 10	13 9½	5 8½	4 4	6	—	36	2,510
S.D.P.	S.	Hy. 3.9	17.9	H.	9⅛×2⅜	9⅛×2⅜	292	6.40—13	12(56)	I. C.	I. C.	9 0	4 8½	4 10	15 3	5 8½	5 1½	8	—	36	2,629
S.D.P.	S.	Hy. 4.1	17.4	H.V.S.	9⅛×2⅜	9⅛×2⅜	292	6.70—13	12(56)	I. C.	I. C.	9 3	4 8½	4 10	15 7	5 8½	5 1½	8½	—	36	2,783
S.D.P.	S.	Hy. 4.1	17.4	H.V.S.	9⅛×2⅜	9⅛×2⅜	292	6.70—13	12(56)	I. C.	I. C.	9 3	4 8⅜	4 9⅜	15 7	5 8½	5 1⅜	8⅜	—	36	2,965
—	S.L.	Hy. 5.13	15.6	H.V.S.	10½×3½	10½×3½	450	7.60—15	12(70)	I. C.	I. C.	10 4	4 10	5 0	17 0	6 1	5 4	8½	—	40	4,400
S.D.P.	C.	Hy. 3.64	22.1	H.V.S.	10½×3½	10½×3½	450	6.70—15	12(56)	I. C.	I. C.	7 10½	4 7	4 9	15 0	5 10½	4 3	5	—	37½	3,000
—	—	Hy. 2.69	—	H.	11×3	11×2	345	8.00—14	12(65)	I. C.	¼-E.	10 6	5 0	5 0	18 1	6 8½	4 7½	—	—	—	—
S.D.P.	F.	Hy. 4.22	15.4	H.	8×1½	8×1½	126	5.20—13	12(51)	I. C.	¼-E.	7 1	3 9 7/16	3 8½	12 5½	5 1½	4 8	6½	—	35	1,860
H.D.P.	R.	S.G.	15.53	H.	7×—	7×—	—	4.40—10	12(24)	I. R.T.	I. C.	6 2½	3 8	3 5	10 0	4 3	4 2	6	—	31	770
S.D.P.	C.	Hy. 4.3	17.0	H.	10×1¾	10×1¾	220	5.60—15	12(57)	I. C.	¼-E.	7 10	3 11½	3 11½	13 0	4 9½	4 2	6	2½	28	1,988
S.D.P.	C.	Hy. 4.3	17.3	H.D.	8⅜	8⅜	—	5.90—15	12(57)	I. C.	¼-E.	7 10	3 11⅜	4 0⅜	13 0	4 9½	4 2	6	2½	32½	2,185
S.D.P.	C.	Hy. 4.55	16.3	H.	10×1¾	10×1¾	220	5.50—15	12(57)	I. C.	¼-E.	8 6	4 3	4 3	14 1	5 3	4 10	6½	2½	37½	2,430
S.D.P.	F.	Hy.	17.0	H.	9×1½	9×1½	141	5.00—15	12(38)	I. C.	¼-E.	8 0	3 11	3 11	12 0	4 8	4 1	7	2	32	1,456
S.D.P.	C.	Hy.	21.0	H.	9×1¾	9×1¾	198	5.60—15	12(53)	I. C.	¼-E.	8 0	3 11	3 11	12 0	4 8	4 4½	7	2	33	1,848
S.D.P.	C.	Hy. 4.55	15.2	H.	7×1½	7×1½	110	5.00—14	12(43)	I. Tor.	¼-E.	7 2	4 2⅜	4 2 1/16	12 4	5 1	5 0	6½	2½	33	1,724
S.D.P.	C.	Hy. 4.88	15.0	H.	9×1½	9×1½	170	5.60—15	12(57)	I. Tor.	¼-E.	8 1	4 5½	4 5	14 3	5 5	5 3	6½	3	35½	2,332
S.D.P.	C.	Hy. 4.88	15.0	H.	9×1½	9×1½	170	5.60—15	12(57)	I. Tor.	¼-E.	8 1	4 5½	4 5	14 3	5 5	5 3½	6½	3	35½	2,395
M.W.P.	C.	C.	—	H.	—	—	—	4.40—8	12(—)	I. Tr.	C.	7 9	4 0	4 0	10 6	4 7	4 3	9	—	—	683
S.D.C.	C.	S.G.4.41	13.7	H.	6½×—	6½×—	—	4.40—12	12(24)	I. C.	I. C.	6 6½	3 11½	3 11½	10 3½	4 8	4 6	7	2½	28	1,083
S.D.C.	C.	S.G.4.41	13 7	H.	6½×—	6½×—	—	4.40—12	12(32)	I. C.	I. C.	6 8½	3 11½	3 11½	11 10½	4 9	4 1	7	2½	28	1,137
S.D.P.	S.	Hy. 3.64	—	H.	11×2½	11×2	311	8.50—14	12(70)	I. C	¼-E.	10 2	4 11	4 10	17 4½	6 6⅜	4 9⅜	6	5	42	4,172
—	—	—	25.1	—	11×2½	11×2	311	9.00—14	12(—)	I. C.	¼-E.	10 3	5 1	5 1	18 2⅜	6 8⅜	4 8	7	5	—	4,476
S.D.P.	S.	Sp. 6.15	15.27	H.	9×1¾	9×1 7/16	178	145×380	12(40)	I. Tr.	Tor.	8 10 7/16	4 3 7/16	4 3 7/16	15 0⅜	5 5 7/16	4 9½	6⅜	3	32⅜	1,876
S.D.P.	C	Hy. 3.7	20(26)	H.D.F.	11	10×2¼	390	5.50—15	12(47)	I. C.	¼-E.D.	7 10½	4 3	4 3	13 6	5 3	4 2	6½	2½	34	2,100
S.D.P.	S.	W. 5.75	17.0	H.	10×1¾	10×1¾	174	155—380	12(58)	I. Tr.	C.	8 6	4 4⅜	4 4	14 3	5 3½	4 11½	7	3½	29	1,988
S.D.P.	S.	W. 5.75	17.0	H.	10×1½	10×1½	190	165—380	12(58)	I. Tr.	C.	8 9	4 4⅜	4 4	14 8	5 5⅜	4 11⅜	7	3½	30	2,352
T.C.	F.	Hy. 2.93	—	H.V.S.	12×2½	12×2½	377	8.00—14	12(50)	I. Tor.	¼-E.	9 10	5 1	4 11⅜	17 3⅜	6 6½	4 8⅜	5⅜	—	42½	3,390

and XK150, opt. extras, O/D and automatic transmission. **JENSEN:** Opt. extra, Standard saloon, O/D. **LANCIA:** Aurelia convertible, wheelbase, 8ft 0½in. **MERCEDES-BENZ:** 219, 220S, 220SE, opt. extra, automatic transmission. **PEERLESS:** Opt. extra, O/D

The Autocar BUYERS' GUIDE

Make and Model	U.K. Basic Price (Saloon unless otherwise indicated)	Total Price in U.K. including P.T.	Engine Position, No. and Arrangement of Cyls.	Bore and Stroke	Engine Capacity	Maximum Gross and Nett B.H.P. @ Spec. R.P.M.			Maximum Torque and B.M.E.P. @ Spec. R.P.M.			Compression Ratio (to 1)	Valve Position	Fuel Tank Capacity (Imp. Gals.)	Make and Number of Carburettors or Make and Type Fuel Injection	Forward Overall Gear Ratios including Overdrive if fitted				
						Gross	Nett	R.P.M.	Torque	B.M.E.P.	R.P.M.									
	£ s	£ s d		mm	c.c.				lb ft	p.s.i.										
PONTIAC																				
Bonneville	—	—	F. 8-V.	103×95.2	6,360	280	—	4,400	—	—	—	10.0	O.	17½	(1)	A.				
Parisienne	—	—	F. 6-I.L.	—	—	150	—	4,000	—	—	—	8.5	O.	17½	(1)			—		
PORSCHE																				
356A 1600 coupé	1,330	1,996/7	R. 4-H.*	82.5×74	1,582	70	—	4,500	82.2	128	2,800	7.5	O.	11½	ZE (2)	3.9	5.4	7.8	14.1	
Carrera G. T.	2,100	3,151/7	R. 4-H.*	85×66	1,498	125	—	6,400	91.1	150	5,200	9.0	2.O.C.	17½	SO (2)	3.9	5.4	7.8	14.1	
PRINCESS																				
IV	2,250	3,376/7	F. 6-I.L.	87.3×111.1	3,993	150	—	4,100	227	140	2,400	7.6	O.	17	SU (2)	A.	4.1	5.9	11.1	15.7
Limousine	2,150	3,226/7	F. 6-I.L.	87.3×111.1	3,993	—	—	—	—	—	—	6.8	O.	16	ST (1)	4.5	6.4	10.5	15.1	
RAMBLER																				
Custom	—	—	F. 6-I.L.	79.4×107.9	3,205	127	—	4,200	180	139	1,600	8.7	O.	16½	HO (1)	(3.1)	4.4	7.1	11.4	
RENAULT																				
750	437	656/17	R. 4-I.L.	54.5×80	747	—	21	4,200	33	110	2,000	7.75	O.	6	SO (1)	5.0	8.5	17.4		
Dauphine	505	758/17	R. 4-I.L.	58×80	845	30	26.5	4,250	48	142	2,000	7.75	O.	7	SO (1)	4.7	7.9	16.2		
Fregate	894/10	1,343/2	F. 4-I.L.	88×88	2,141	77	—	4,000	121	139	2,200	7.0	O.	13	SO (1)	3.9	5.4	8.1	14.8	
RILEY																				
One-Point-Five	575	863/17	F. 4-I.L.	73×89	1,489	68	62	5,400	83	138	3,200	8.3	O.	7	SU (2)	3.7	5.1	8.3	13.6	
Two-Point-Six	940	1,411/7	F. 6-I.L.	79.4×89	2,639	101	—	4,500	142	132	2,500	8.3	O.	12	SU (2)	3.9	5.6	8.0	12.9	
ROLLS-ROYCE																				
Silver Cloud	3,795	5,693/17	F. 6-I.L.	95.3×114.3	4,887	—	—	—	—	—	—	8.0	O.I.	18	SU (2)	A 3.4	5.0	9.0	13.1	
Silver Wraith (chassis)			F. 6-I.L.	95.3×114.3	4,887	—	—	—	—	—	—	8.0	O.I.	18	SU (2)	A 3.9	5.6	10.2	14.9	
ROVER																				
60	899	1,349/17	F. 4-I.L.	77.8×105	1,997	60	—	4,000	101	125	2,000	6.9	O.I.	11¼	SU (1)	4.3	5.9	8.8	14.5	
75	985	1,478/17	F. 6-I.L.	73×88.9	2,230	80	—	4,500	113	125	1,750	7.2	O.I.	11¼	SU (1)	4.3	5.9	8.8	14.5	
90	1,025	1,538/17	F. 6-I.L.	73×105	2,638	93	—	4,500	138	129	1,750	7.5	O.I.	11¼	SU (1)	4.3	5.9	8.8	14.5	
105	1,085	1,628/17	F. 6-I.L.	73×105	2,638	108	—	4,250	152	142	2,500	8.5	O.I.	11¼	SU (2)	4.3	5.9	8.8	14.5	
3-litre	1,175	1,763/17	F. 6-I.L.	77.8×105	2,995	115	—	4,250	164	136	1,500	8.75	O.I.	14	SU (1)	4.3	5.9	8.8	14.5	
SIMCA ARONDE																				
P60 de luxe	532	799/7	F. 4-I.L.	74×75	1,290	48	—	4,800	65	125	2,800	6.8	O.	9⅜	SO (1)	4.4	6.5	10.4	16.4	
Elysee 4-door	615	923/17	F. 4-I.L.	74×75	1,290	48	—	4,800	65	125	2,800	6.8	O	9⅜	SO (1)	4.4	6.5	10.4	16.4	
Monaco 2-door	725	1,088/17	F. 4-I L.	74×75	1,290	57	—	5,200	66.5	129	3,100	7.8	O.	9¼	SO (1)	4.4	6.5	10.4	16.4	
SIMCA VEDETTE																				
Beaulieu	965/10	1,449/12	F. 8-V.	66.1×85.7	2,351	84	—	4,800	112	118	2,750	7.5	S.	13½	Z-S (1)	3.9	6.9	12.1		
Chambord	1,100	1,651/7	F. 8-V.	66.1×85.7	2,351	84	—	4,800	112	118	2,750	7.5	S.	13½	Z-S (1)	3.9	6.9	12.1		
Marly	—	—	F. 8-V.	66.1×85.7	2,351	84	—	4,800	112	118	2,750	7.5	S.	13½	Z-S (1)	4.6	8.1	14.2		
SINGER																				
Gazelle	598	898/7	F. 4-I.L.	79×76.2	1,494	60	56.3	4,500	82.8	137	2,300	8.5	O.	10	SO (1)	4.8	7.1	11.8	15.2	
SKODA																				
440	525	788/17	F. 4-I.L.	68×75	1,089	—	40	4,200	50.6	115	2,800	7.0	O.	6½	JI (1)	4.8	7.6	17.8	20.4	
450	725	1,088/17	F. 4-I.L.	68×75	1,089	—	50	5,200	54.2	123	3,500	8.4	O.	6½	JI (1)	4.8	7.6	17.8	20.4	
1201 estate car	695	1,043/17	F. 4-I.L.	72×75	1,221	—	45	4,200	62.2	126	2,500	7.0	O.	7½	JI (1)	5.3	8.4	12.8	22.4	
STANDARD																				
Eight	430	646/7	F. 4-I.L.	58×76	803	33	—	5,000	42.5	130	2,700	8.25	O.	7	SO (1)	4.6	6.6	11.2	19.5	
Ten	440	661/7	F. 4-I.L.	63×76	948	37	—	5,000	50.8	133	2,750	8.0	O.	7	SO (1)	4.6	6.6	11.2	19.5	
Pennant	485	728/17	F. 4-I.L.	63×76	948	37	—	5,000	50.8	133	2,750	8.0	O.	7	SO (1)	4.6	6.6	11.2	19.2	
Ensign	599	899/17	F. 4-I.L.	76×92	1,670	60	—	4,000	91.6	135	2,200	8.0	O.	12	SO (1)	4.1	5.7	8.6	14.5	
Vanguard	695	1,043/17	F. 4-I.L.	85×92	2,088	68	—	4,200	113.3	134	2,000	7.5	O.	12	SO (1)	4.3	7.2	15.2		
STUDEBAKER																				
Hawk Regal	—	—	F. 8-V.	—	—	—	—	—	—	—	—	8.3	O.	—	—			—		
Lark	—	—	F. 8-V.	—	—	—	—	—	—	—	—	8.3	O.	—	—			—		
SUNBEAM																				
Rapier	695	1,043/17	F. 4-I.L.	79×76.2	1,494	73	68	5,200	81.3	134	3,000	8.5	O.	10	ZE (2)	4.6	6.8	11.3	14.5	
TOJEIRO																				
Mark IV	2,850	—	F. 6-I.L.	83×106	3,442	250	—	5,750	242	174	4,000	9.0	O.C.	28	WE (3)	3.5	4.2	6.7	10.1	
Mark III	1,500	—	F. 4-I.L.	72.4×66.6	1,098	84	—	6,700	71	161	5,000	9.8	O.C.	6	SU (2)			—		
TRIUMPH																				
T.R.3 sports	699	1,049/17	F. 4-I.L.	83×92	1,991	100	—	5,000	117.5	145	3,000	8.5	O.	12	SU (2)	3.7	4.9	7.4	12.5	
UNICAR																				
Model T	283	425/17	R. 2-I.L.*	58×62	328	18	—	5,000	21.6	78	3,000	8.0	2-str.	3½	AM (1)	5 1	8.2	15.4		
VAUXHALL																				
Victor	498	748/7	F. 4-I.L.	79.4×76.2	1,507	54.8	48.5	4,200	84.5	138.5	2,400	7.8	O.	8	ZE (1)	4.1	6.7	13.1		
Velox	655	983/17	F. 6-I.L.	79.4×76.2	2,262	82.5	76	4,400	124	135	1,800	7.8	O.	10.8	ZE (1)	4.1	6.7	11.8		
Cresta	715	1,073/17	F. 6-I.L.	79.4×76.2	2,262	82.5	76	4,400	124	135	1,800	7.8	O.	10.8	ZE (1)	4.1	6.7	11.8		
VOLKSWAGEN																				
De luxe	505	758/17	R. 4-H *	77×64	1,192	36	30	3,700	56	98.4	2,000	6.6	O.	8.8	SO (1)	3.6	5.4	8.3	15.8	
VOLVO																				
122S	932	1,399/1/10	F. 4-I.L.	79.4×80	1,582	85	—	5,500	86.8	136	3,500	8.2	O.	9⅞	SU (2)	4.6	7.4	14.3		
WOLSELEY																				
1500	530	796/7	F. 4-I.L.	73×89	1,489	50	43	4,200	74	123	3,000	7.2	O.	7	SU (1)	3.7	5.1	8.3	13.6	
Fifteen-Fifty	660	991/7	F. 4-I.L.	73×89	1,489	55	52	4,400	78	130	2,400	8.3	O	9½	SU (1)	4.9	6.7	10.8	17.7	
Six-Ninety Series III	850	1,276/7	F. 6-I.L.	79.4×89	2,639	101	94	4,500	141.5	132	2,500	8.3	O.	12	SU (2)	4.1	5.9	8.4	13.6	

RAMBLER: Opt. extras, O/D and automatic transmission. **RENAULT:** Dauphine, opt. extra, Ferlec clutch. Fregate and Grand Pavois, opt. extra, Transfluide drive.
RILEY: 2.6, opt. extra, O/D. **ROVER:** 60, 75, 90, opt. extra, O/D. 3 Litre, opt. extras, O/D and automatic transmission. **SIMCA VEDETTE:** Opt. extra, O/D.

FOR 1959 CARS . . .

Type of Clutch, Automatic, or Transmission	Gear Lever Position	Type of Final Drive and Final Drive Ratio	Top Gear M.P.H. per 1,000 R.P.M. (also on overdrive top)	Brakes: Type (e.g. Hydraulic; mechanical; servo or disc)	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc: F in	Brakes: Internal Dia. of Drum and Lining Width, or Dia. of Disc: R. in	Area of Metal Rubbed by Brake Linings	Tyre Size	Voltage and Capacity of Battery	Type of Suspension and Springs: F.	Type of Suspension and Springs: R.	Wheelbase	Track: F.	Track: R.	Overall Length	Overall Width	Overall Height	Road Clearance	Number of Turns from Lock to Lock	Turning Circle	Maker's Kerb Weight incl. 5 Gals. Fuel
					in	in	sq in	in or mm		F.	R.	ft in	ft in	ft in	ft in	ft in	ft in	in		ft	lb
F.C.	—	—	—	H.	—	—	—	8.00—14	12(53)	I. C.	—	—	—	—	18 4½	6 8½	4 8	6⅞	—	—	—
—	—	—	—	H.	—	—	—	7.50—14	12(53)	I. C.	—	—	—	—	17 7½	6 8½	4 8	6⅞	—	—	—
S.D.P.	C.	Sp. 4.43	—	H.	11×1¾	11×1¾	222	5.60—15	6(84)	I. Tor.	I. Tor.	6 10½	4 3½	4 2	12 11½	5 5½	4 3½	6½	2½	36	1,874
S.D.P.	C.	Sp. 4.43	—	H.	11×1¾	11×1¾	222	5.90—15	6(84)	I. Tor.	I. Tor.	6 10½	4 3½	4 2	12 11½	5 5½	4 3½	6½	2	36	1,903
F.C.	S.	Hy. 4.09	20.4	H.V.S.	12×2¼	12×2¼	378	6.50—16	12(63)	I. C.	½-E.	10 1½	4 10½	5 0	16 9	6 1½	5 5¾	7	3½	43	4,480
S.D.P.	S.	Hy. 4.45	19.2	H.	12×2¼	12×2¼	378	7.00—16	12(70)	I. C.	½-E.	11 0	4 10½	5 2½	17 11	6 2½	5 10	6½	—	45	4,680
S.D.P.	S.	Hy. 4.38	20.7(25.6)	H.	9×2	9×2	226	6.40—15	12(50)	I. C.	C.	9 0	4 9½	4 10	15 11	5 11½	4 10	8	4½	37½	2,968
S.D.P.	C.	Sp. 4.71	14.0	H.	7×1¾	7×1¾	105	5.20—15	6(85)	I. C.	I. C.	6 10½	3 11½	3 11½	11 10	4 8½	4 10	7½	3½	27½	1,320
S.D.P.	C.	Sp. 4.37	14.9	H.	9×1½	9×1½	133	5.00—15	6(85)	I. C.	I. C.	7 5	4 1½	4 0	12 11	5 0	4 9	7	4	29½	1,389
S.D.P.	S.	Hy. 3.89	19.8	H.	11×2½	11×2	311	6.40—15	12(90)	I. C.	I. C.	9 2½	4 6	4 6	15 5	5 8	5 0¾	7	4	33	2,860
S.D.P.	C.	Hy. 3.73	18.4	H.	9×2½	8×1¾	202	5.00—14	12(43)	I. Tor.	½-E.	7 2	4 2½	4 2⅝	12 9	5 2	5 0	6½	2½	34½	2,060
S.D.P.	D.	Hy. 3.90	20.4	H.V.S.	11½×2½	11×2½	344	6.70—15	12(57)	I. Tor.	½-E.	9 5½	4 6½	4 6½	15 5½	5 7	5 1	6½	4½	40½	3,609
F.C.	S.	Hy. 3.42	25.0	H.M.S.	11½×3	11½×3	424	8.20—15	12(57)	I. C.	½-E.	10 3	4 10	5 0	17 7½	6 2½	5 4	7	4½	41½	4,400
F.C.	S.	Hy. 3.88	23.0	H.M.S.	12½×2½	12½×2½	346	7.50—16	12	I. C.	½-E.	11 1	4 10	5 4	—	—	—	7	4	45½	3,260
S.D.P.	C.	Sp. 4.7	18 (21.2)	H.	11×2½	11×2½	311	6.00—15	12(51)	I. C.	½-E.	9 3	4 4	4 3½	14 10½	5 5⅜	5 3⅜	7⅛	3½	37	3,106
S.D.P.	C.	Sp. 4.7	18 (21.2)	H.	11×3	11×2½	345	6.00—15	12(51)	I. C.	½-E.	9 3	4 4	4 3½	14 10½	5 5⅜	5 3⅜	7⅛	4	37	3,262
S.D.P.	C.	Sp. 4.3	18 (23.3)	H.V.S.	11×3	11×2½	345	6.00—15	12(51)	I. C.	½-E.	9 3	4 4	4 3½	14 10½	5 5⅜	5 3⅜	7⅛	4	37	3,269
S.D.P.	C.	Sp. 4.3	23.3	H.V.S.	11×3	11×2½	345	6.00—15	12(51)	I. C.	½-E.	9 3	4 4	4 3½	14 10½	5 5⅜	5 3⅜	7⅛	4	37	3,340
S.D.P.	C.	Sp. 3.9	18.3	H.V.S.	11×3	11×2½	345	6.70—15	12(51)	I. Tor.	½-E.	9 2½	4 7	4 8	15 6½	5 10	5 0¾	7½	4½	39½	3,400
S.D.P.	S.	Hy. 4.44	15.87	H.	10⅛×1½	10⅛×1½	222	5.60—14	12(48)	I. C.	½-E.	8 0½	4 1⅜	4 1½	13 6¼	5 2⅜	4 8¼	5½	3½	31½	1,995
S.D.P.	S.	Hy. 4.44	15.87	H.	10⅛×1½	10⅛×1½	222	5.60—14	12(48)	I. C.	½-E.	8 0½	4 1⅜	4 0½	13 9	5 1½	4 8⅛	5¼	3½	31½	2,072
S.D.P.	S.	Hy. 4.44	15.87	H.	10⅛×1½	10⅛×1½	222	5.60—14	12(48)	I. C.	½-E.	8 0½	4 1⅜	4 0½	13 9	5 1½	4 8⅛	5¼	3½	31½	2,072
S.D.P.	S.	Hy. 3.90	20.24	H.	11×2½	11×2	311	6.50—15	12(45)	I. C.	½-E.	8 9½	4 5⅛	4 4½	15 7	5 9⅜	4 9¾	6⅛	3½	37½	2,744
S.D.P.	S.	Hy. 3.90	20.24	H.	11×2½	11×2	311	165—380	12(45)	I. C.	½-E.	8 9½	4 5⅛	4 4½	15 7	5 9⅜	4 9¾	6⅛	3½	37½	2,744
S.D.P.	S.	Hy. 4.55	17.36	H.	11×2½	11×2	311	165—380	12(45)	I. C.	½-E.	8 9½	4 5⅛	4 4½	15 1½	5 8¼	4 11¼	6⅛	3½	37½	2,833
S.D.P.	S.	Sp. 4.78	15.5	H.	9×1½	9×1½	198	5.60—15	12(38)	I. C.	½-E.	8 0	4 1	4 0½	13 7½	5 0¾	4 11½	7	3½	36	2,330
S.D.P.	S.	Hy. 4.78	14.5	H.	9⅛×1½	9⅛×1½	156	5.50—15	12(40)	I. Tr.	I. Tr.	7 10½	3 11½	4 1½	13 4	5 3	4 8½	7	—	33	1,984
S.D.P.	S.	Hy. 4.78	—	H.	9⅛×1½	9⅛×1½	156	5.50—15	12(40)	I. Tr.	I. Tr.	7 10½	3 11½	4 1½	13 4	5 3	4 6¾	7	—	33	1,980
S.D.P.	S.	Hy. 5.25	12.7	H.	9⅛×1½	9⅛×1½	156	6.00—16	12(45)	I. Tr.	I. Tr.	8 9½	4 1½	4 4	14 3½	5 6½	5 5	7½	—	36	2,490
S.D.P.	C.	Hy. 4.55	14.0	H.	7×1½	7×1½	110	5.20—13	12(33)	I. C.	½-E.	7 0	4 0½	4 0½	11 10	4 10	4 11	6	2½	32	1,624
S.D.P.	C.	Hy. 4.55	14.0	H.	7×1½	7×1½	110	5.20—13	12(33)	I. C.	½-E.	7 0	4 0½	4 0½	11 10	4 10	4 11	6	2½	32	1,694
S.D.P.	C.	Hy. 4.55	15.0	H.	7×1½	7×1½	110	5.60—13	12(38)	I. C.	½-E.	7 0	4 0½	4 0½	12 3	4 10	4 11	6	2½	32	1,694
S.D.P.	C.	Hy. 4.1	18(23)	H.	9×1½	9×1½	198	5.90—15	12(51)	I. C.	½-E.	8 6	4 3½	4 3½	14 4	5 7½	5 0	7	2½	35	2,604
S.D.P.	S.	Hy. 4.3	17.3 (22.2)	H.	10×2½	10×2½	283	5.90—15	12(51)	I. C.	½-E.	8 6	4 3½	4 3½	14 4	5 7½	5 0	7½	2½	35	2,688
—	—	—	—	—	—	—	—	6.70—15	—	—	—	10 0½	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	6.40—15	—	—	—	9 0½	—	—	—	—	—	—	—	—	—
S.D.P.	C.	Sp. 4.55	16.06	H.	10×2½	9×1¾	241	5.60—15	12(38)	I. C.	½-E.	8 0	4 1	4 0½	13 6½	5 1	4 10½	5¾	3½	36	2,370
S.D.P.	C.	M.D.P.	24	H.D.	12	12	—	6.00—16F 6.50—16R	12(40)	I. C.	D.D.C.	7 6	4 3½	4 3½	12 6	5 8	2 10	5½	2½	36	1,760
S.D.P.	C.	S.D.P.	—	H.D.	9½	10	—	4.50—15F 5.00—15R	12(30)	I. C.	D.D.C.	7 0	3 11	3 11	11 2	5 3	2 8	4	2½	36	882
S.D.P.	C.	Hy. 3.7	20.0	H.D.F.	11	10×2½	370	5.50—15	12(51)	I. C.	½-E.	7 4	3 9	3 9½	12 7	4 7½	3 10	6	2½	35	2,128
M.W.P.	C.	C.	—	M.	6½×1½	6½×1½	95	4.40—12	12(22)	I. C.	C.	6 0	4 0	3 0	9 8	4 9	4 4	6	2½	39	812
S.D.P.	S.	Hy. 4.13	16.5	H.	8×1½	8×1½	151	5.60—13	12(43)	I. C.	½-E.	8 2	4 2	4 2	14 0	5 2½	4 9½	6¾	3⅞	34	2,175
S.D.P.	S.	Hy. 4.11	17.8	H.	9×2½	9×2½	226	6.40—13	12(53)	I. C.	½-E.	8 9	4 6	4 6	14 10	5 8½	4 9	6¾	3½	36	2,590
S.D.P.	S.	Hy. 4.11	17.8	H.	9×2½	9×2½	226	6.40—13	12(53)	I. C.	½-E.	8 9	4 6	4 6	14 10	5 8½	4 9	6¾	3½	36	2,635
S.D.P.	C.	Sp. 4.43	20.0	H.	9×1.6	9×1.2	154	5.60—15	6(85)	I. Tor.	I. Tor.	7 10½	4 3	4 1½	13 4	5 0½	4 11	6	2½	36	1,609
S.D.P.	S.	Hy. 4.56	16.2	H.	9×2	9×2	226	5.90—15	6(85)	I. C.	C.	8 6¾	4 3⅜	4 3⅜	14 5	5 3½	4 11½	7½	3½	32½	2,491
S.D.P.	C.	Hy. 3.73	18.4	H.	9×1½	8×1½	160	5.00—14	12(43)	I. Tor.	½-E.	7 2	4 2⅞	4 2⅝	12 8	5 1	5 0	6½	2⅜	34½	2,060
S.D.P.	C.	Hy. 4.88	16.0	H.	9×1½	9×1½	170	5.60—15	12(57)	I. C.	½-E.	8 6	4 2⅜	4 3	14 5	5 1	5 0	7⅛	2⅜	37½	2,436
S.D.P.	R.	Hy. 4.1	18.7	H.V.S.	11½×2½	11×2½	344	6.40—15	12(57)	I. Tor.	½-E.	9 5½	4 6½	4 6½	15 8	5 7	5 2	7⅜	4⅛	40½	3,453

SINGER: Opt. extra, O/D. **STANDARD:** Eight, Ten, Companion, Pennant, opt. extras, O/D and 2-pedal control. Ensign, opt. extra, O/D. Vanguard, opt. extras O/D, automatic transmission. **SUNBEAM:** Opt. extra, O/D. **TRIUMPH:** Opt. extra, O/D. **VOLVO:** Opt. 4-speed gear box. **WOLSELEY:** 6/90, opt. extra, O/D.

Disconnected Jottings

BY THE SCRIBE

Nigger in Woodpile

THROUGH correspondence, acquaintanceship, and so on, I am in touch with the serious motorists who pile up their 20,000 miles a year; in transport cafes I meet the trunk haulage drivers, with their lean Viking faces.

These people should all be cheering at the modern idea that there are to be Motorways: roads which are not Lovers' Lanes, the exercise ground of dogs, the way from a field to a milking shed for cows, the smooth track on which you learn to drive, the communication between Upper Snorting and Lower Snorting, the route between Mon Repos and the grocer, the track which joins the Bull at Muddleswick with the Dun Cow at Ughampton. There is to be, it seems, a new kind of road dedicated to the hauliers, the coaches and the motorists who need to proceed rapidly from one part of the British Isles to another!

As I said, the people for whom such motorways are designed should be cheering. But I hear only worry, pessimism; terrible increases in the accident rate are forecast. These worries arise from experience—what about the Old Heaps, what about the Locals?

Actual Instance

I AM well acquainted with the accident situation on a certain stretch of a great trunk road which was dangerous, and had more than its share of head-on collisions, arising from undulations and blind crests, slight enough not to be apparent. The local garageman thought he would no longer have his gruesome crash trade, but he might be seen in the forecourt rubbing his hands as over-revved old cars came thundering down the new twin-track straights. And his engine repair and replacement trade did become simply phenomenal. As a combined humanist and business man he loathed crashed cars—he rather welcomes those in dire need of major mechanical attention.

Still Gruesome

YET he regrets that he still has to clear up gruesome accidents, and they involve local cars which still use the great trunk road as if it were Lovers' Lane, joining two neighbouring villages—they swoop out, they swerve from lane to lane.

I cannot put forward any overall solution to this grave problem, but I venture to suggest that in the light of motor road experience the driving examinations and the Highway Code are, to some extent, dangerous nonsense, and indeed may be killing many people already.

Lesson 1 may be that on the motorways the traffic indicators should be disconnected, and the window kept up in case the driver may be tempted into making a hand signal. A car whose location in the traffic lanes is vague, whose intentions are not clear to all other road users by its placing, and which does not smell of what it is going to do long before it does it, would be a mere nuisance without signals. But emboldened by the false authority of winkers or hand flapping, it may do the most extraordinary and daring things!

So often one has heard, in sequel—"I waved him down, Your Worship." "I signalled a turn, Your Worship." "I was on all of me proper side of the road, Inspector." "I had the right of way, M'Lord."

Dishonourable

THE present practice of the law courts and the tradition of insurance companies is the reverse of the military. In war, wounds in front are automatically honourable, and wounds behind shameful, but on the road the reverse is true. Anyone who owns an old heap can have it rebuilt completely, by courtesy of somebody else's insurance, if he swerves into a faster traffic lane or, after relining the brakes, does a surprising crash stop on a clear road. Wounds behind are in the right.

I suggest, therefore, that law and insurance practice be modified to take into account the fact that the faster and overtaking vehicle is not always in the wrong. Three-lane motorways will need this idea *very badly indeed*. Lanes will have to be lanes, observed as if they were railway tracks.

Just as an experiment, I recently drove 30 miles up the Portsmouth Road and into central London without making signals; and with the ambition of being so aware of following cars that they never blew the horn. Result: not one toot. That's lane observance—and it should be everyone's regular practice, not just an exceptional experiment.

No Animals, Anyway

ON the motorways farm animals, horse vehicles, and cyclists are not to be permitted. On ordinary main roads the common law does not help very much: I believe that a cow (or other domestic or farm animal) has very superior rights of way over a horseless carriage. *She* may wander: *it* is responsible. There was a very pretty case not long ago where a frisky pony ran out on a road, and young girls were, in a court decision, not held responsible for the animal causing an accident on a main road. They were competent young women, though young, the court held; there was no remissness.

Dogs in Doghouse

AT the moment the "road safety" town of Slough, where the boffins conduct their safety experiments, is hauling in dogs which stray (dogs cause a startling proportion of accidents). Surprisingly few of the arresting coppers have been bitten, for most policemen are fond of dogs and have a way with them.

I hate to think of dogs shut up and even chained. Why don't owners recognize that dogs can be trained to traffic? I have noticed the wise old dogs of Battersea, which use the pedestrian crossings, and have grown grey in their liberty among London traffic. I have had the dreadful experience of running over a poodle puppy in the suburbs. And I have taken a trained gun dog through London without a lead, as a boy. Unaccustomed to cities, he nevertheless kept to heel very nicely; when I crossed, he crossed. But on the Underground railways, it seemed, dogs had to be on a lead or carried. It added to the gaiety of the capital when a schoolboy descended on the escalators, carrying an amused and playful setter of his own size.

Cows, ponies, dogs . . . what is this to do with people, motorists, and the new expressways? Well, it is a pity that people behind driving wheels are not so wise always as the wise old dogs of Battersea, or the schoolboy's setter. I think that even unreasoning humanity, in charge of a car, if trained instead of spoilt by the Law, could rise to dog level and recognize the need for the discipline, training and sense which modern traffic exacts.

Daylight

SOME foreign exhibition halls, and Olympia, are glass palaces, and exhibits may be seen in daylight. I think this is a good thing—artificial light is wrong for assessing the appearance of cars; it does not suit them, and it emphasizes any slight waving of panels or imperfection of finishes.

I would like Earls Court to have a glass roof—not that much light would penetrate the gloom of an October day in West London.

I hear that the Paris Show is to be moved from the Grand Palais to an astonishing new building on the edge of the city, though this will probably not happen for three years. The new, larger exhibition hall looks like a triangular white handkerchief, gently curved and standing on its three points. Although the roof is solid, three enormous semi-circular sides of glass, yet to be added, should scoop in the light.

When you come to think of it, the natural surroundings of cars are brick, cement, tarmac, gravel, grass, clothing, and other matt or semi-matt surfaces.

MOSS and HAWTHORN

THIS WEEKEND STIRLING MOSS AND MIKE HAWTHORN RACE AT CASABLANCA : ONE WILL EMERGE WORLD CHAMPION

ON Wednesday evening last week, television viewers saw —all too briefly—Mike Hawthorn sitting, puffing away at his pipe, unruffled while he answered questions about motor racing; unhesitatingly and sincerely he defended his sport.

In his flat, surrounded by the model ships and cars that occupy his spare time, Stirling Moss, his wife Katie and I watched the broadcast. We had had dinner, expertly prepared by Katie (she really is an accomplished cook); it was a domestic scene like thousands of others at that moment all over the country. Suddenly Stirling jumped up, bounced over to the telephone (he doesn't walk in the accepted sense) and telephoned the studio. "Ask Mike if he'd like to come round to the flat when he's finished with his broadcast, and have a drink," he said in as many words.

A few minutes later Peter Dimmock, in charge of Sportsview, said to viewers, "Stirling Moss has just 'phoned the studio to say that if that promising newcomer who's just been on the air would care to go round to his flat for a drink, he'd be glad to give him a few tips on motor racing."

In ten days' time, the two drivers were due to leave for Casablanca's sunshine and palms, and there, on the sand-swept circuit, fight out the final round of the battle for the World Championship—"bitter rivals" in the contest that has recently received so much publicity; two British drivers struggling for a title which never before has been won by a British driver, and which inevitably, one of them must win.

They are two widely contrasting characters—Stirling, everyone agrees, deserves to win the Championship, having been so near to getting it for so long (if trying hard deserves to be rewarded). Motor racing is his life; to drive properly, safely, needs fitness, he maintains, so he trains and is superbly fit. Every effort is channelled into the job of driving, and driving well. Small, quick-moving (one needs to run to keep up with his walking speed), incapable of wasting a moment, and completely untiring, he has set himself a target, and the achievement of it is his single purpose.

In keeping with this aim is his home life. With the same thoroughness and enthusiasm that he applies to his motor racing, he goes into his model making—and with almost boyish enthusiasm shows off his equipment, tools and models themselves, which are astonishingly well made. Intolerant of inefficiency, his standards are high, and he expects people to live up to them.

Then Mike—tall, loose-limbed, fit in so far as leading a normal free-and-easy life will permit, enjoying his pint, his pipe and cigarettes, he is almost a caricature of the typical Englishman. Until the limelight was suddenly foisted upon him he wasn't much concerned with the Championship: "It's spoiling my motor racing," he says. "Now I find myself working out sums to see how many points I've really got. And, even now, I haven't the faintest idea whether I can count every point for fastest laps, or only some of them."

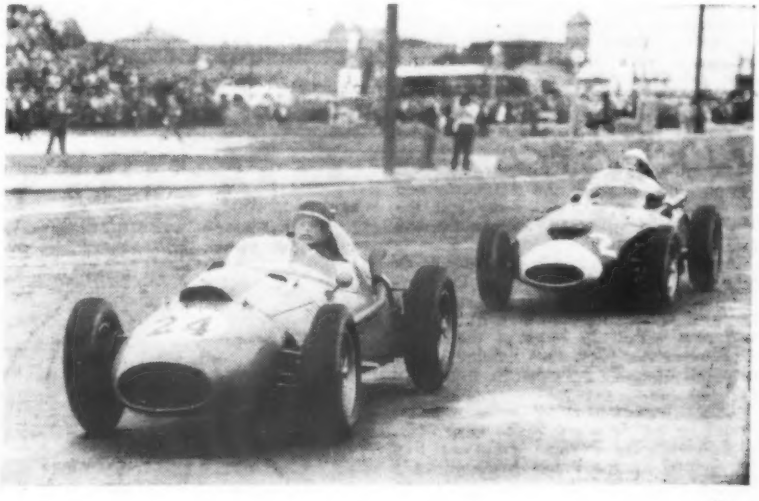
Two entirely different approaches to the same thing—yet Mike, perhaps more colourful, is as good as Stirling on his day, though Mike himself would be the first to admit that Stirling, for sheer consistency and polish, is the better.

Eventually, Mike came round to the flat, cheerily said "Hello" —then his eye lit on Stirling's miniature trains, laid out on a table; a most involved system of points, signals, lights, wires and switchboards. Over he went, and sat down to play with them, while Stirling showed him the scale model engines and rolling-stock. Very quickly Mike got the hang of the switches and settled down, glass of whiskey to hand. An electric crane with magnetic pick-up caught his fancy, and lids of tonic water bottles were hoisted aloft . . . and dropped into Stirling's glass of grapefruit juice.

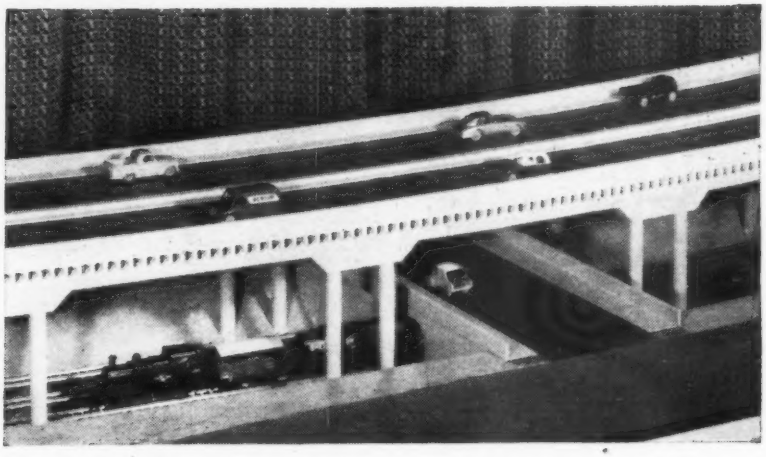
Two well-known and very popular figures who have entertained hundreds of thousands of people all over the world, who have chosen as their livelihood one of the most dangerous ways of life there can be—one thought of them racing in the heat of the Argentine, among the pine trees of the Nurburgring, high on the banking of the Monza track in the dangerous 500-Mile race, escaping almost miraculously from accidents, maintaining averages in the snows of the Monte Carlo Rally—and all the widely contrasting conditions that make up their quite exceptional lives. Here they were, playing trains . . . chatting lightheartedly of the Championship that one of them must win . . . the other lose.

P. G.

Oporto, 1958: Moss' Vanwall—ultimate winner—follows Hawthorn's Ferrari



News and Views



THREE ROAD EXTENSIONS will provide the important Midland Motorway links (below) and a three-mile stretch of the new road will be carried on a viaduct above the railway, as in this model

ROAD DEVELOPMENTS—PROGRESS REPORT

IN Tuesday's announcement from the Ministry of Transport on progress and prospects in new road construction, one of the most important features was a proposal to build part of a new road in the Midlands above the railway. This imaginative plan promises to beat the most up-to-date schemes tried on the Continent, and will carry a dual carriageway road through Smethwick and Oldbury and to the south of West Bromwich, for about three miles. A model of it is illustrated above.

An immediate question which will occur to everyone is "When"? No construction date has been given yet, but this does not mean that it is just a paper scheme. Another question is, "If for Birmingham, why not elsewhere?" Apparently the problem is that many sections of main railway line leading into cities are already built on bridges, which would not stand the additional load of a road built above them. It is encouraging that this first project is considered feasible and is before the planners, for it will form part of the extremely important link between the Midlands end of the South Wales motorway and the south end of the motorway to Preston and the north-west.

Another section will join these two roads with the north end of the London-Birmingham motorway. It will run from south of Walsall towards Dunchurch, and will pass within 2½ miles of the centre of Birmingham City, thus helping in the dispersal of traffic between the motorway and the city.

Other important road news was released by the Ministry at the same time, as follows. The Preston Motorway is to be opened by the Prime Minister on 5 December. Work on the Slough and Maidenhead by-passes is to start next spring. An inner relief road is to be built at Canterbury to take traffic on the main road away from the centre. A draft scheme fixing the line of the motorway between the Lancaster and Preston By-passes is to be published next year.

The Heads of the Valleys road (A465) in Wales is to be almost completely rebuilt and to incorporate parts of the railway permanent way between Merthyr and Abergavenny, recently closed by the British Transport Commission. The Sainctelette-type double-deck road to be built above the Great West Road is being redesigned, and will now link with the Chiswick fly-over. Work on the Staines By-pass will start, it is hoped, early next year.

Encouraging comments made by Mr. Watkinson on the road programme were that the Government was determined to keep up the momentum, and schemes were being prepared as far ahead as 1962-3; plans were also being made for eight years ahead. He added: "Industrial needs come first, but holiday traffic has not been forgotten, and improvements to holiday routes will bulk more largely in later stages of the programme."

On the subject of driving on motorways, Mr. Watkinson announced that a code of driving behaviour on fast roads was being prepared for release when the Preston Motorway came into use. It would give advice on the concept of high speed and matters such as lane discipline. He repeated that there would be no upper or lower speed limits on motorways during the one-year trial period on the Preston Motorway. Whether speed limits and other regulations would be imposed later would depend entirely on practical experience of drivers' behaviour on the new road and this was to be studied carefully.

R. G. Cooper

WE regret to record the death of Mr. R. G. Cooper, who served for over 30 years with the British School of Motoring. He will be especially remembered for his work in connection with driving tuition for the disabled.

Frisky Three-wheeler

A THREE-WHEELER version of the Frisky Sport is under development; it is powered by a single-cylinder 197 c.c. Villiers engine, and the intention is to market it only in the British Isles. The total price, including purchase tax, is expected to be under £400. This model will not be appearing at the Motor Show.

Meriden By-pass Open

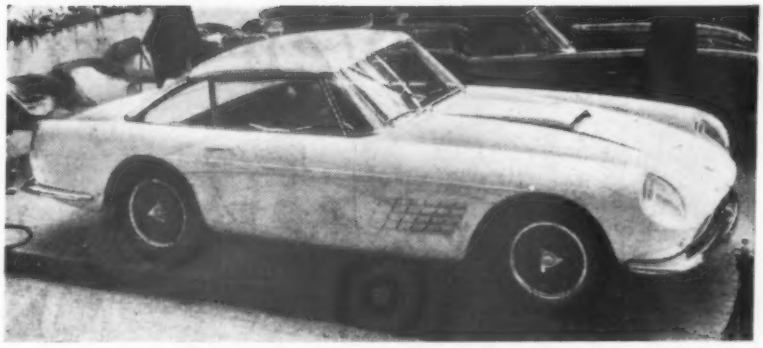
MR. WATKINSON unveiled a plaque on Monday to commemorate the opening of the five-mile Meriden By-pass between Coventry and Birmingham. The road is a dual twin-lane carriageway with reserved access, and its construction has been completed four months ahead of schedule. It is one of the important extensions of the London-Birmingham motorway.

World Production

FIGURES published by the West German Institute of Industry in Cologne place the United States as the world's largest car producer, with 2,200,000 units manufactured in the first six months of this year. Federal Germany is put second at 589,000 cars, and Great Britain third (551,000). Runners-up are France (479,000), Italy (193,000) and Canada (183,000).

Lake Geneva By-pass

MORE information received concerning the proposed Geneva-Lausanne motorway in Switzerland (mentioned in *The Autocar* last week) suggests that it will not be possible to run the new road along the side of Lake Geneva as was originally hoped. Instead, it appears that the road will be constructed inland; the finishing date of 1964 also seems unlikely to be achieved.



LATE ARRIVAL at the recent Paris Salon was the new 410 Superamerica Ferrari two-seater with body by Pinin Farina. The 4,962 c.c. vee-12 engine develops 400 b.h.p.; claimed speed is 175 m.p.h.

Next Week

LONDON SHOW REPORT

. . . containing a full stand-to-stand report of all the car and coachwork exhibits at Earls Court.

- ★ *Much enlarged section dealing with principal components, caravans, tools, radios and equipment.*
- ★ *Manufacturers' 1959 programmes, including descriptions of two new British small cars.*
- ★ *Illustrated report of the Monaco Grand Prix—decider for the World Championship.*
- ★ *Personal preference in Show cars—discussed by a Swiss expert.*
- ★ *News, The Sport and regular features.*

Show Review - - 31 October

Road Tests, 1958

AS last year, *The Autocar Road Tests* book is being published in two volumes, and the autumn edition is now on sale. It contains complete Road Test reports and performance data reprinted from recent issues of *The Autocar*, covering 21 cars. Of these, 15 are British, four French, one American, and one is Swedish. A comprehensive table of data and performance figures is included for quick comparisons between the cars described. Among them are: Austin A.35 four-door, Austin-Healey Sprite, Facel Vega FVS, Jaguar XK150 hard top and 3.4, MGA Twin Cam, Rolls-Royce Silver Cloud and Vauxhall Cresta II. The book is on sale from booksellers or from *The Autocar* stand at Earls Court, to the right of the Warwick Road entrance. The price is 6s, or 6s 8d by post from Trade Counter, Iliffe and Sons, Ltd., Dorset House, Stamford Street, London, S.E.1.

Commercial Show Retrospect

VISITORS from the British Isles to the Commercial Motor Show, which ended at Earls Court on 4 October, totalled 106,558. This is 7,517 more than for the previous Commercial Show in 1956. Overseas visitors came from more than 70 countries, and totalled 3,641—a new record. All the major exhibitors have announced large orders and encouraging buyer interest in their products.

Radar Appeal Dropped

AN appeal by the Crown against the Greenock Sheriff's finding of "not guilty" in a radar speeding case was dismissed by the Appeal Court in Edinburgh last week. The motorist in the case, Mr. R. Anderson, was accused in July of driving at 42 m.p.h. in a built-up area, and a radar meter was the evidence used against him. The Sheriff-substitute at Greenock, in Scotland, had rejected the prosecution and declared that the radar equipment was "a rather unreliable machine."

In the appeal hearing, the Solicitor-General, for the Crown, said that certain facts on which evidence had been given had been omitted by the Sheriff-substitute from his findings. He had given no finding on the speed recorded when the accused's car was within the radar beam. For this reason, he said, the Crown would drop the appeal.

The result of this appeal is somewhat indecisive; it stands as a warning to the police that radar is by no means accepted by the courts, yet it does not indicate to motorists that radar speed traps may be ignored.

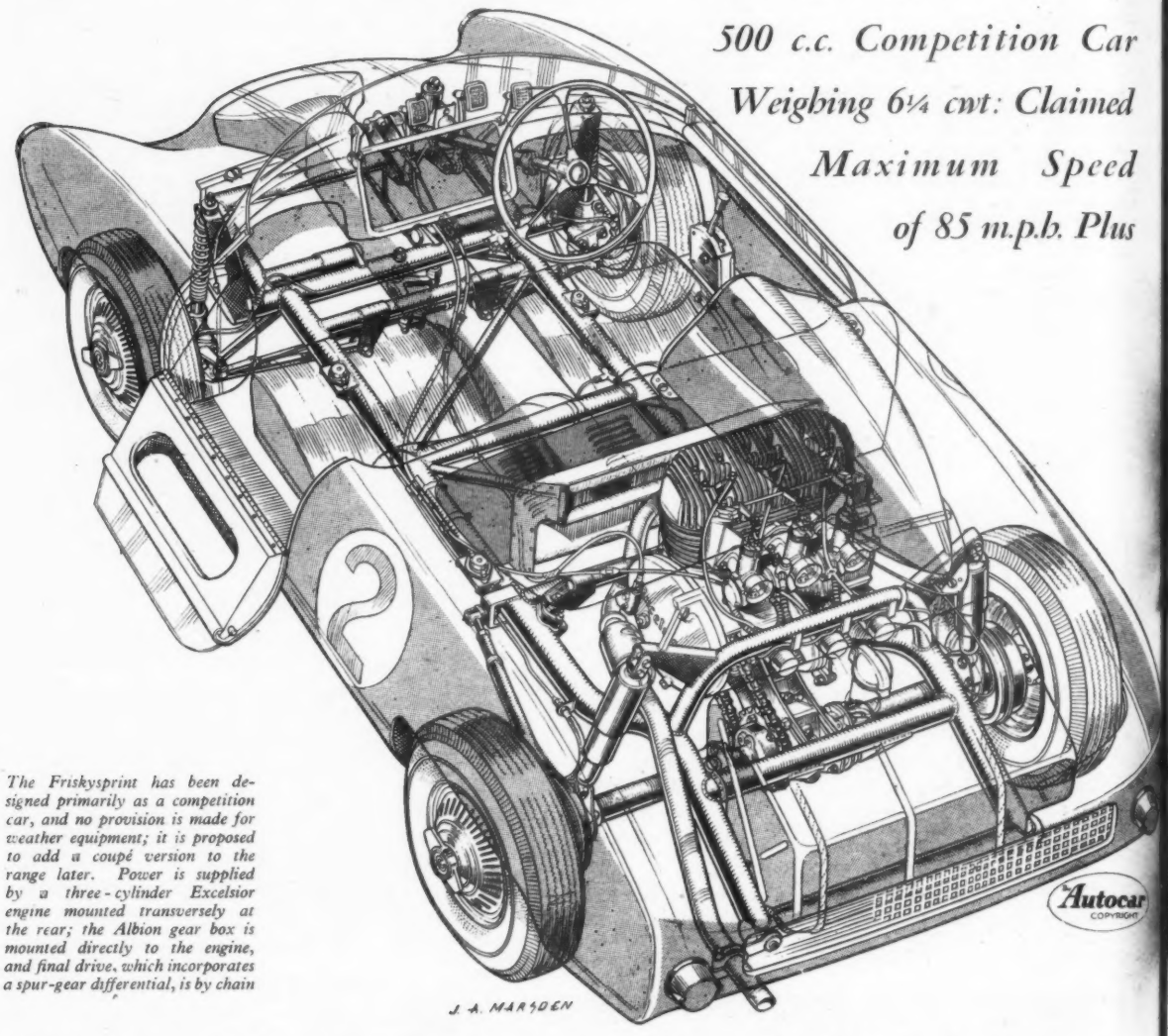
It is understood that Greenock police are going to have another try with their radar meter.

This Gill prototype, with revised rear-end treatment, has been shipped to Montreal where Estrex (Canada), Ltd. will explore its possibilities for use in the city. Behind the bench seat is a luggage platform over the 332 c.c. Anzani twin engine. It is made by Gill Getabout Cars, 5, George Street, London, W.1

1959 MODELS

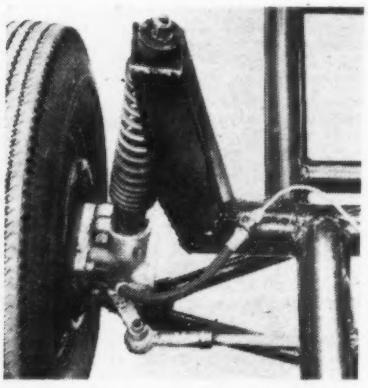
A New Friskysprint

500 c.c. Competition Car Weighing 6¼ cwt: Claimed Maximum Speed of 85 m.p.h. Plus



The Friskysprint has been designed primarily as a competition car, and no provision is made for weather equipment; it is proposed to add a coupé version to the range later. Power is supplied by a three-cylinder Excelsior engine mounted transversely at the rear; the Albion gear box is mounted directly to the engine, and final drive, which incorporates a spur-gear differential, is by chain

A single lower wishbone is used for the front suspension. A combined Woodhead telescopic damper and spring is clamped to the stub axle at its lower end. This type of front suspension is also being introduced on the Friskysport



THERE has been but limited interest in 500 c.c. sporting events up to the present, simply because there are relatively few cars in production which are suitable. Frisky Cars, considering that there will be an increasing interest in this small class if a demand is created, have announced details of a production prototype in this category to be shown at Earls Court; it will appeal mainly to young enthusiasts wishing to enter for sporting events. Firm prices are not yet available, but it is estimated that the car will cost approximately £750, inclusive of U.K. purchase tax; it complies with Appendix C of the International Sporting Code.

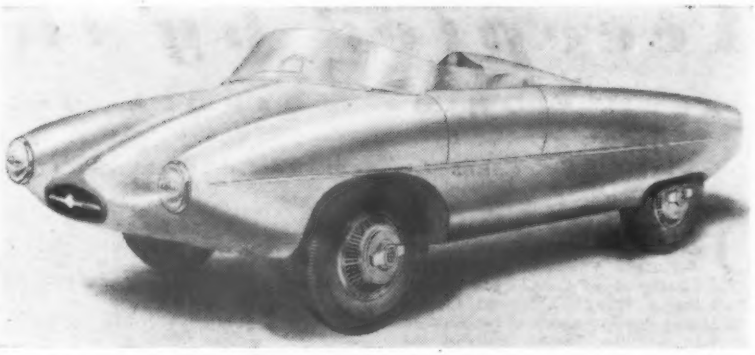
Glass-reinforced polyester resin is the material used for the body, which initially will be marketed only as an open two-seater. Individual seats are placed on either side of a backbone tunnel, and entry is through a drop-down door on each side. As the car is intended primarily for competition purposes, there is no weather protection equipment in the form of a hood, and no separate luggage capacity. Passengers are protected by a wrap-round Perspex screen which merges with panels of similar material above each door.

The chassis frame, to which the body is attached on rubber mountings, is a simple, parallel-sided ladder type constructed of 2¼in dia by 16 s.w.g. (0.064in) tubes. It is widened slightly at the front to pick up with the front suspension top mountings, and swept up at the rear for clearance of the swing axle drive shafts. There are six substantial tubular cross-members, and the central portion of the frame has diagonal stiffeners to resist lozenging loads.

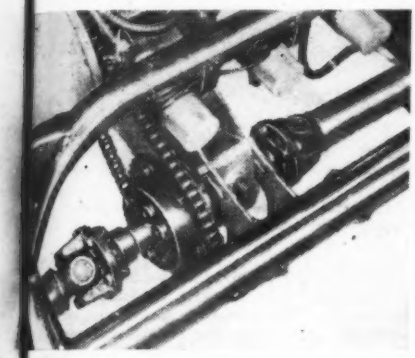
Front suspension is by a single lower wishbone and a combined Woodhead damper and coil spring on each side. The lower end of the damper is clamped in a cylindrical portion of the stub axle, and attached at its upper end by opposed hemispherically shaped rubber bushings, to a raised mounting point on the frame; these bushings accommodate changes in

geometry resulting from wheel deflections and also form the upper pivot bearing for each wheel. On the underside of each stub axle is a single metal ball joint which carries the weight of the car and forms the wheel lower pivot bearing. The worm and peg steering box is mounted forward of the frame front cross-member, and a steering rod connects rearwards to a centrally mounted idler lever. From this a connection is taken to each wheel by a divided track rod.

Power is supplied by a rear-mounted Excelsior 492 c.c. three-cylinder in-line two-stroke (a full description was given in *The Autocar* of 11 October 1957). Recent changes made in the engine include an increased compression ratio, modifications to the port timing and the introduction of caged rollers for the big-end bearings. This engine is placed transversely in the frame behind the seats, and the Albion four-speed, constant-mesh type of gear box, bolted to its rear face, is driven by a duplex roller chain from the crankshaft at half engine speed. It is enclosed in an oil bath case, as also is the multi-plate clutch.



An artist's impression of the completed car, which has a fibre glass body. Entry is by drop-down doors hinged at the waist line, and passengers are protected by an enclosing Perspex screen. A head fairing attached to the rear engine cover is provided for the driver



Final drive to the wheels is by a single roller, heavy duty chain, and the final drive sprocket includes a spur gear type of differential. An aluminium casting, slightly offset from the centre line of the chassis to the right-hand side of the car, contains the bearings for the final drive sprocket. This off-set of the casing is arranged to provide equal length drive shafts to each wheel, because they also form part of the rear suspension linkage, each being a triangular member of the swing axle layout, and used for transverse location of the wheels. Each drive shaft has a single inboard universal joint, and at its outer end are the two hub bearings of each wheel. An aluminium casting is used for each wheel carrier; attached to it is a forward-facing arm with a Thompson ball joint for attachment to the chassis at the front end.

Cooling air from the engine is obtained from two sources. Air from a grille in the nose of the car is ducted along the central backbone tunnel of the body to an outlet behind the seat squab. The second source of air pick up, from the under side of the floor pan, is directed into the same ducting. This air ducting should suffice for continuous running, but as a result of development work a thermostatically controlled, electrically driven fan may be added for traffic use. A cylinder-head temperature gauge will be included in the car's instrumentation.

An 8-gallon light alloy fuel tank is cradle-mounted on rubber pads in the tail of the frame, and fixed with elastic cord. The three Amal carburettors of the Excelsior engine are supplied through an S.U. electric fuel pump. As illustrated in the cutaway drawing, the gear box is equipped with a normal gate change, but a positive stop type operated by a Bowdenflex push-pull control is expected to be available in time for the Earls Court Show. It will be, as shown in the drawing, on the right-hand side of the car. Left-hand drive is also available, gear change being on the left side.

Already plans are advanced for a more powerful version of the Friskysprint. It will be fitted with a 700 c.c. vertical twin cylinder, four-stroke motor cycle engine, developing 54 b.h.p.

Above left: A spur gear-type differential is enclosed within the casing of the final drive sprocket; the drive shafts, each with a single inboard universal joint, are used for transverse location of the wheels. Below left: The three-cylinder Excelsior engine with its silencer, showing the Siba Dynastart on the end of the crankcase

SPECIFICATION

ENGINE

No. of cyls.	3 in line (transverse) air-cooled.
Bore and stroke	58 x 62mm (2.28 x 2.44in).
Displacement	492 c.c. (29 cu in).
Valve position	None. Ported two-stroke.
Compression ratio	8.25 to 1
Max. b.h.p. (gross)	30 at 5,700 r.p.m.
Max. torque	35.6 lb ft at 3,500 r.p.m.
Max. b.m.e.p.	89 lb sq in at 3,500 r.p.m.
Carburettor	3 Amal
Tank capacity	8 Imperial gallons (36.4 litres)
Battery	12 volt 28 amp. hour

TRANSMISSION

Clutch	Albion—multiple wet plate
Gear box	4 speed. Right-hand gear lever
Overall gear ratios	Top 4.6; 3rd 6.3; 2nd 9.2; 1st 15.2.
Final drive	Chain

CHASSIS

Brakes	Lockheed hydraulic
Drum dia., shoe width	7 x 1¼in
Suspension: front	Independent, coil and single wishbone
rear	Independent, swing axle and coil
Tyre size	5.20—10in

DIMENSIONS

Wheelbase	5ft 8in (172.5 cm)
Track: front	4ft 0½in (122.6 cm)
rear	3ft 11in (119.4 cm)
Overall length	10ft 2½in (311 cm)
Overall width	4ft 8in (141.5 cm)
Overall height	3ft 1½in (95.3 cm)
Ground clearance	5in (12.7 cm)
Turning circle	24ft (7.32 cm)
Turns, lock to lock	2¼
Kerb weight	690 lb (314 kg)

PERFORMANCE DATA

Top gear m.p.h. per 1,000 r.p.m.	13.4
Torque lb ft per cu in engine capacity	1.25
Brake surface area swept by linings	110 sq in

Accepted by the F.I.A.

ITALY'S JUNIOR FORMULA GROWS IN STATUS

By Count Giovanni Lurani Cernuschi ("Johnny" Lurani)

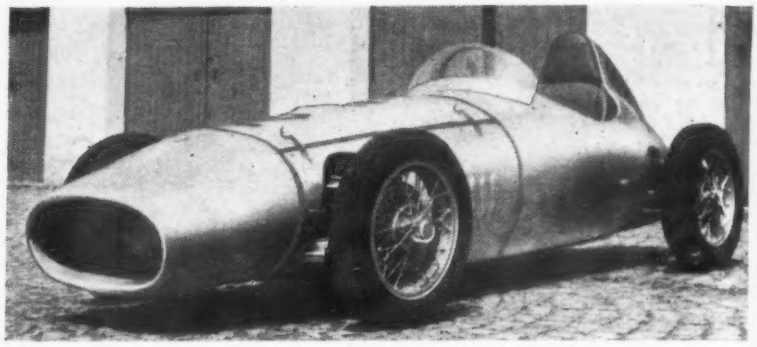
ONLY three years ago Italy had seven first-class Grand Prix drivers —Taruffi, Villoresi, Farina (first World Champion) of the old school, and Ascari (twice World Champion), Castellotti, Musso and Mantovani of the younger generation. Today Farina, Villoresi and Taruffi have retired, Ascari, Castellotti and Musso have lost their lives, Mantovani is disabled. Italy, once the cradle of racing drivers, is left without one—and without any young fellows coming along. Almost the same fate has hit France, where only Behra and Trintignant keep up a tradition that at one time saw Chiron, Etancelin, Benoist, Divo, Lehoux and others among racing aces. Germany has the same problem—the country that had Caracciola, Rosemeyer, Brauchitsch and Lang racing at the same time, today has only young von Trips as a possible star.

England instead has a great covey of young champions—Stirling Moss, Mike Hawthorn, Tony Brooks, Lewis-Evans, Hill, Salvadori, Allison and many more.

Why such a difference in the destiny of motor racing in the various European countries? The answer to me seems to rest with the different policy that the various countries have recently adopted in promotion and organization of racing.

In England formula 3 breeds champions and there are, all over the country, races on road circuits and aerodromes for such cars, and for sports and racing machinery. In continental Europe, motor sport has drifted to Touring and *Gran Turismo* competitions, and rallies. The pukka racing car is disappearing, and the majority of money prizes and honours are confined to rallies and tamer stuff.

The obvious answer is, of course, a policy of giving new life and finding new enthusiasms for "real" motor racing and circuit racing—and such can be given to our sport only through racing cars.



Winner of the Formula Junior race that preceded the Portuguese Grand Prix, the Fiat-Volpini is among the cars that have raced regularly this season

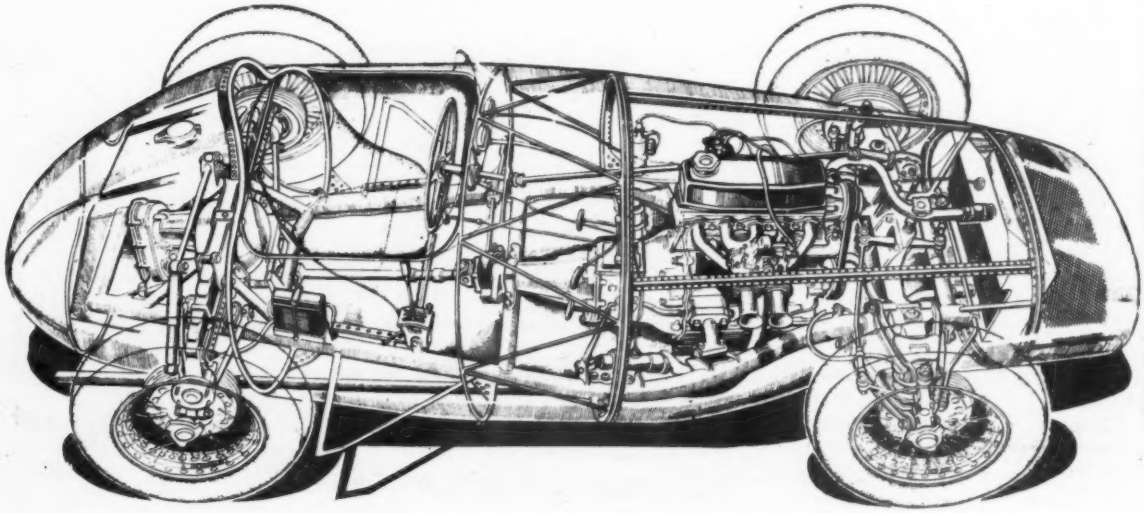
Touring cars should be left for rallies; Gran Turismo cars for long events and some hill climbs or mixed events as the Tour de France or 12-Hour races; sports cars should be confined to circuit races and hill climbs, remembering, of course, that sports cars are now often very fast machinery, often expensive and with no real relation to ordinary road cars.

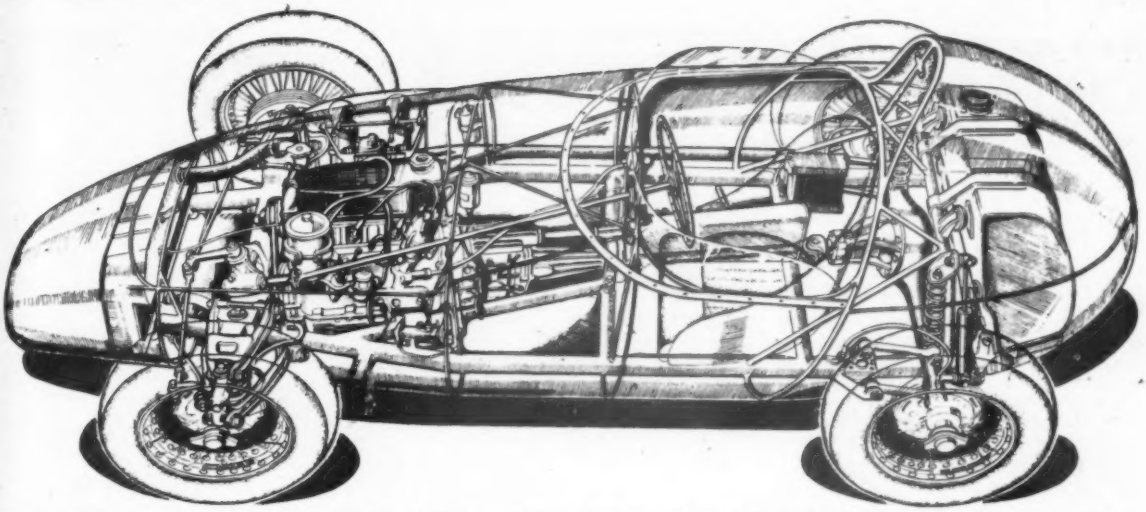
What we really needed was a modern, cheap, lively single-seater racing car, not dangerous, on which young drivers could test their skill, get acquainted with the feel of an actual monoposto, and graduate. With such a goal in mind some people thought that the answer was with a "monotype" car. In other words, they said: "Let us build cars all alike, let us draw numbers before the race, allot them to the drivers and see what they can do." This system, perhaps good in theory, proved almost a complete failure. In Italy, immediately after the war, the Cisitalia factory built three dozen identical cars, quite fast, amusing to drive and well designed (the famous Ing. Giacosa of Fiat's was behind the scenes) and drivers such as Nuvolari, Cortese, Brivio, Taruffi, Ascari and Serafini drove them, but the experiment failed miserably after only two events. Something similar happened in France: the Monomill experiment there also proved a failure.

In England you have scored a great success with formula 3 so far, but interest is dwindling because, as *The Autocar* has rightly said, monopoly breeds monotony. As in Italy, nobody was interested in watching cars all alike racing each other.

The right answer, I felt, was a formula through which, in every country, any mechanically-minded and skilful designer could build, with the cheapest local material, a safe, fast, businesslike racing car, able to compete on level terms with similar cars built anywhere in Europe.

Fiat-Volpini: Fiat 1,100 c.c. unit with Weber twin-choke carburettor. A low seating position is achieved by passing the propeller shaft under the differential to a quick-change ratio transfer box and turning the chassis-mounted differential unit "about-face"





Fiat-Stanguellini: Again, a Fiat 1,100 c.c. unit is used, with Amal-type carburettors. In this instance the drive-line is angled in the frame and the differential is offset in the axle casing, the driver sitting low down on the left-hand side

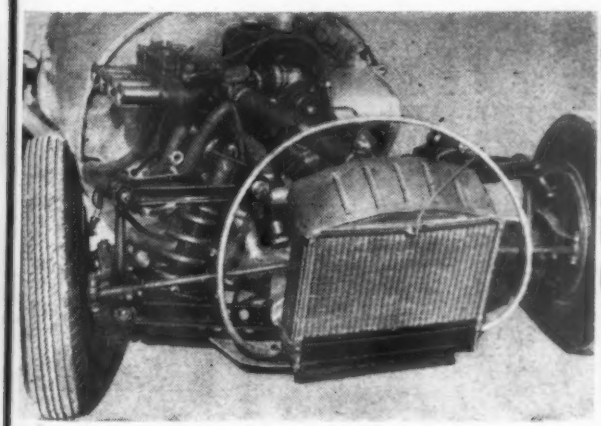
ACCEPTED BY THE F.I.A.

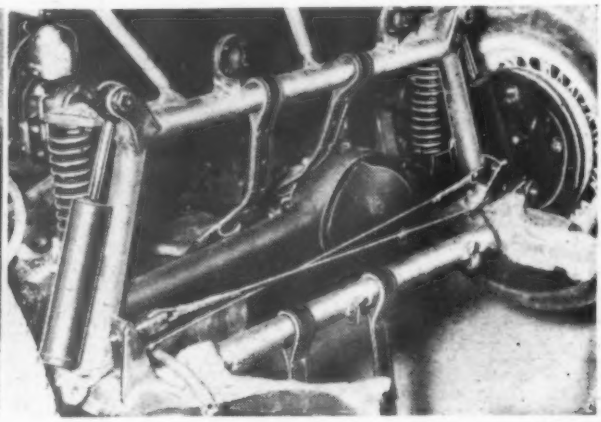
This was my goal when, in November, 1956, I published my first proposal of a new international racing car formula to be called "Junior." My original plan was, perhaps, too simple. I proposed that the formula should be for unsupercharged cars with a cylinder capacity of 1,000 c.c.; cylinder head, cylinder block, crankcase, should come from a normal homologated Touring Car model duly recognized by the F.I.A.; of course the fuel had to be the normal high grade fuel to be bought at local pumps. The one-litre capacity could be reached by increasing the capacity of smaller engines, or reducing the capacity of bigger ones. Naturally changes in bore, stroke or both were to be permitted.

When this formula was proposed in San Remo at the meeting of the Italian Sporting Committees it created a great sensation. Filippi, in Leghorn, De Sanctis, in Rome, and others were building some kind of "midget" cars, so a special Committee was nominated to study the formula best suited for Italy. I had in mind that it should be international, but for the time being, the Italians wanted it just Italian! Immediately after having proposed my first scheme, I thought that a weight lower limit should be applied. Complete freedom of weight obviously would encourage expensive machines (light alloys, carefully machined parts, elaborate space frames and the like) and also *dangerous* cars (liberal drilling by amateurs, unsafe suspensions, steering gears, rear axles and chassis).

Thus a weight limit of about 350-400 kg crept into the formula and we went on studying it through 1957. A most enthusiastic reaction to the idea came from the countries where there is no big motor

Fiat Stanguellini: Above, the complete car is beautifully turned out, and looks what it is intended to be—a miniature Grand Prix car. Below, left: In this case, two twin-choke Webers are used on the 1,100 c.c. Fiat unit. Right: The offset final drive unit, with coil spring rear suspension and telescopic dampers





ACCEPTED BY THE F.I.A. . . .

industry (Switzerland, Holland, Belgium, Sweden, Poland and Yugoslavia) where it was rightly thought that one could build with cheaply bought standard parts of universally popular cars as Fiat, Morris, Volkswagen, D.K.W. and Renault.

At the end of 1957 the Italian Competition Committee published the Italian National Junior Formula, in which the engine-clutch-gear box had to come from an Italian homologated 1,100 c.c. car (only Fiat 1,100 c.c. or Lancia Appia qualified) and front suspension had to be from the same car. All internal parts of the engine could be changed. There were many other restrictions, but the main one was a minimum weight, without fuel but with oil and coolant, of 400 kg.

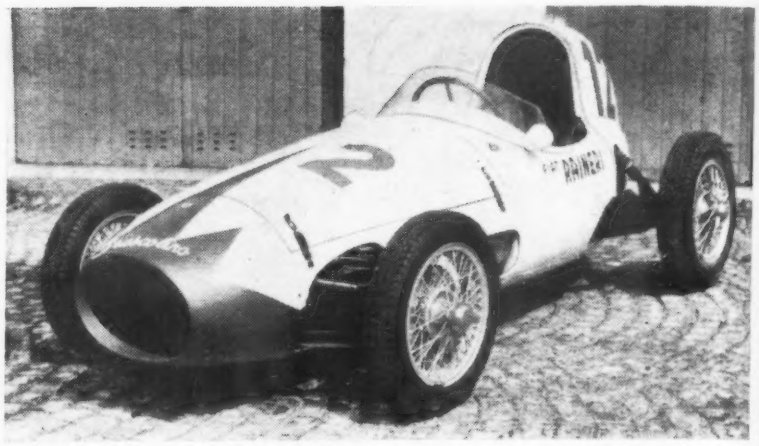
At the Monte Carlo meeting in 1958, notwithstanding the opposition of some Italian circles who wished the formula to be kept "national," I was able to propose to the C.S.I. the adoption of a "Junior" Formula, and a special international Committee was nominated for preliminary study. The first reactions were good but the first special meeting of the Junior Committee in Geneva saw a recession in the plan.

French constructors declared that it was impossible for smaller French machines to be "built up" to 1,000 c.c., English delegates wrote that formula 3 and Lotus 1,100 c.c. sports cars would be quite adequate (probably forgetting that it was impossible for the rest of the world to build cars capable of being a match), the Italian official attitude was "wait and see," and the Germans were the only enthusiasts.

But work was not stopped: somebody still believed in the soundness of the formula. While Junior racing gained ground in Italy, a sort of weight-to-cylinder-capacity formula was studied. At the meeting at which the 500-Mile race was run in Monza, Italian Junior cars were tried on the banked track, and an average speed of over 182 k.p.h. (114 m.p.h.) was recorded.

It became apparent also that engines with overhead camshafts should be barred, because the C.S.I. in its June meeting in Lucerne had clearly stated that the Junior Formula should be cheap.

Surprisingly, at the September meeting of the C.S.I. in Milan, it was agreed to get on with the formula—English, German, French and Italian delegates all agreed in principle. Something quite workable can be established keeping in mind that around the reality of about 12 to 15 Italian Juniors which are going quite well, a true international formula can be built. It is thus possible that for 1959 a real International Junior Formula will be a fact.



Another derivative of Fiat parts—the Fiat-Raineri, with Fiat 1,100 c.c. engine, and front suspension parts. Like the others, this car is beautifully turned out, and the roll-crash bar is built into the driver's headrest

SINCE "Johnny" Lurani wrote this article, the Junior Formula has been accepted by the Federation Internationale de l'Automobile at a meeting held last week in Paris; full details of the formula are given in The Sport. In this country, suitable engines are the B.M.C. A-Series unit, fitted to the Morris Minor, Austin A.35, and Austin-Healey Sprite; 1,172 c.c. Ford unit, reduced to 1,100—but still with side valves (o.h.v. conversions are not allowed); the o.h.c. Climax engine, of course, is out. It is interesting that the majority of his suggestions have been adopted.

"Johnny" Lurani then outlined his proposals for the formula—which were adopted by the F.I.A. almost without alteration. Of his proposals he says:

Too complicated?—it may seem so but it is *not!* You just take a cylinder head, cylinder block and crankcase of any popular car, keep the starter, spend lots of midnight oil in working the "insides," fit the lot in a formula 2 Cooper, Lotus or Elva chassis or build your own without too much trouble in drilling holes or using light alloy tanks and other expensive items, and you have your own monoposto.

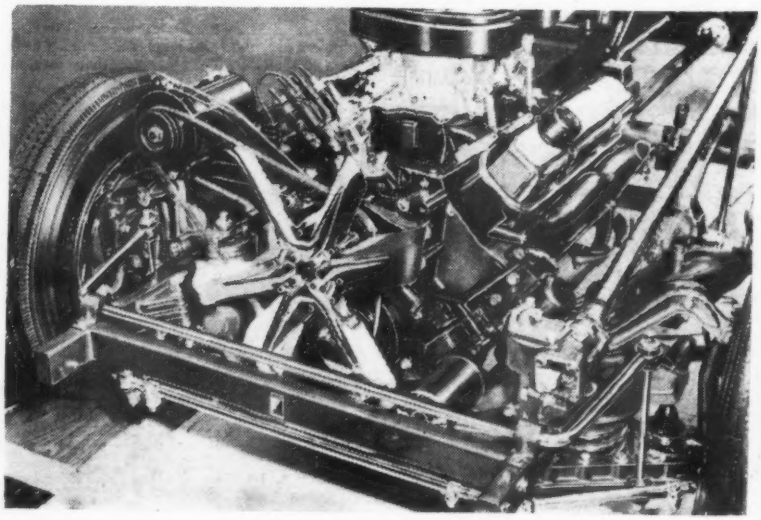
We shall see, racing together, 2-stroke and 4-stroke engines, 2, 3 and 4 cylinder ones, water-cooled and air-cooled, front wheel drives and rear wheel drives, front engines and rear engines . . . and exponents of the industries of England, Italy, Germany, France, Russia, Czechoslovakia and others. In fact, we can expect Austin (B.M.C.), Standard, Renault, Panhard, D.K.W., Wartburg, Ford (England), Simca, Fiat, Lancia, Goliath, Volkswagen, Skoda, Moskwitch! Is it too good to be true?

Technical variety, international competition, basic cheapness in construction and upkeep and maintenance, with safety and good performance, are the goals which the "inventors" of this formula have kept in mind. Will they meet with success?—a try-out is surely worth while.

Facel Vega Developments

A FACEL VEGA HK500 has made officially observed and timed high-speed runs on the Jabbeke Highway between Brussels and Ostend. The driver was Maurice Trintignant, and a speed of 140.3 m.p.h. (226 k.p.h.) was recorded by the Automobile Club of Belgium. Unfortunately a cross gale was blowing at the time and it is felt that the car is capable of improving on this figure in better conditions. The standard 2.93 rear axle was fitted, and the car was as offered for sale in every respect except that the normal 6.00 × 16 rear tyres had been replaced by larger 6.50 × 16 tyres.

At the recent Paris Show a beautifully prepared exhibition chassis was displayed on which the newly adopted disc brakes were seen for the first time (see right).



THIS VIEW of the Facel Vega HK500 chassis shows the Dunlop disc brake installation—an optional extra. The engine is a Chrysler Typhoon V1i

Detroit Notebook

By Roger Huntington, A.S.A.E.

CHEVROLET SMALL MODEL : PRICE CHISELLERS : DREAM CAR : HIGH COMPRESSION

CHEVROLET'S recently announced 1959 model price schedule has triggered another round of speculation on the rumoured Chevy "small car." Suggested retail prices have been boosted $115 to $178 on all models except the luxury Impalas; the lowest-priced '59 Chev. is now listed at $2,160—$147 more than the equivalent '58 price. Detroit observers are wondering if this move is intended to "leave room" for a new low-priced Chev. small car, with prices starting, maybe, at $1,850—it sounds very logical.

Just about the time the new prices were announced, Chevrolet general manager Ed Cole admitted in a press interview that Chevrolet was buying some tools for a projected small car design (which, of course, has been common knowledge throughout the industry for several months). But Cole was careful also to point out that the investment in these tools could be readily written off if the car marketing picture veered away from small cars in the immediate future. He mentioned that in 1947 Chevrolet even went so far as to build a factory to produce a small car—yet the project was abandoned. The implication was that no definite decision has yet been made to produce the new car.

Meanwhile development of the prototypes continues at a feverish pace on the G.M. Proving Grounds at Milford, Michigan . . . and the crystal ball still says we'll have a Chev. small car on the market within a year.

* * *

WITH the '59 models we are seeing the start of a new scheme from Washington to foul the new-car price chiseller, the fast-talking super-salesman who jockeys prices around so that the figures on new car deals cease to have any meaning. The new law requires that the car manufacturer affix a standard tag to all new cars leaving the factory, quoting such information as the suggested retail price of that model (excluding local taxes), accessory prices, freight charges, assembly point from which the car was shipped, the distributor who handled it, and so on. This tag must be left in plain sight for any prospective customer to see before he buys. The dealer is still free to discount and dicker all he wants . . . but the idea was merely to get the true price picture out in the open where everybody could see. The practice of price "packing" (where the salesman quotes fictitiously high prices on the car and accessories and then lures the buyer with a ridiculously high offer for his old car) was getting so bad that several publishers were making money selling factory price lists to buyers for a dollar—it was the only way to tell the true price of the new car.

I wish Washington would keep its fingers out of this sort of thing; the law of supply and demand will regulate the price of cars without the inconvenience and expense of government intervention. As it is, the '59 model prices reflect the cost of added factory bookwork necessary to calculate and post the prices.

* * *

G.M. have scored another publicity victory with their new Mark III Firebird experimental "dream" car. The torpedo-shaped body, with its pointed nose, bubble canopies and seven separate fins, can be dismissed with a shrug . . . but there's a lot of clever engineering under the skin. The car is controlled entirely by a single lever—pushing the lever forward causes it to accelerate; pulling back gives braking, and movement to right or left steers the car. The degree of response in each case depends on the amount of stick travel (Stick movement provides an electrical input to electro-hydraulic servomechanisms that operate throttle, brake, and steering). Power is provided by a 225-b.h.p. gas turbine with regenerator efficiency increased from 80 per cent on the earlier experimental engine to nearly 90 per cent on the new version.

There is a separate power system for all accessories. A 328cc opposed two-cylinder engine runs at a constant 3,600 r.p.m. and delivers 10 b.h.p.; this drives a 110 volt a.c. generator for most of the electrical accessories, an air conditioning compressor, a 12-volt generator to charge the battery, and two hydraulic pumps. This small engine is made largely of aluminium, liquid cooled, and weighs 53lb. The separate power source assures no battery drain under all conditions.

Suspension is on air-oil springs; wheel motion operates a piston in a cylinder of oil, and this is balanced against a chamber of air across a rubber diaphram—a scheme similar to that used by Citroen. The air chambers for front and rear wheels are connected by air lines, so that any bump at the front will increase the pressure in the rear air chambers—which, in turn, will raise the rear of the car and tend to level out the pitching motion. They say the car rides beautifully in rough going. Solid axles are used, with a De Dion setup at the rear and a modified low-speed HydraMatic transmission.

No doubt a lot of these gimmicks are far in the future; but it has been my observation that G.M. dream car features for the last eight years or so have been consistently indicative of future design trends. The Firebird III may be, too.

* * *

GENERAL MOTORS RESEARCH has recently reported results of some very interesting tests of compression ratios up to 25 to 1 on spark-ignition engines. These tests showed that brake horsepower and brake thermal efficiency reach a maximum at a ratio around 17 to 1, and fall off slightly at higher ratios. This maximum thermal efficiency amounted to 39 per cent—(which, incidentally, is very close to what G.M. engineer Charles Kettering predicted in 1947, if spark-ignition engines could use compression ratios up to 17 to 1, as were then used on diesel engines).

The drop in efficiency noted at the higher compressions was proved to be due to slower burning of the charge. This, in turn, was due to a poorer mass distribution of the combustible charge around the spark plug, which slowed the burning rate, and a greater ratio of chamber surface area to volume—which chilled the charge and slowed burning. These factors could be serious problems at very high compressions—that is, as compression ratio goes up it becomes harder to get an efficient combustion chamber *shape*. On G.M.'s 25 to 1 engine the chamber was a mere pancake between the flat piston top and flat cylinder head roof—this is no good for anything.

These G.M. experiments, in conjunction with the Ethyl Corporation findings on engine friction, have stirred quite a lot of talk among Detroit engineers. Up until a few months ago we thought about 12 to 1 would be as high as it would be practical to go with compression ratio on passenger cars. Now it looks as if we can go considerably farther, and get still better fuel economy . . . if we can solve problems like "rumble," structural stiffness, combustion chamber design, and the like.

Chevrolet's luxury car, the Impala four-door sedan hardtop, with 9ft 11in wheelbase, and overall length of 17ft 8in

TOMMY SOPWITH, winner of the one-hour saloon car race, is standing by the side of his Jaguar 3.4 at the beginning of the event; because of a knee injury a mechanic served as a runner for him in the Le Mans-type start

Snetterton Finale

SNETTERTON'S racing season ended last Saturday with the popular, well-organized and extremely entertaining three-hours final for *Autosport's* sports car Championship. The meeting included a one-hour saloon car race and a 10-lap event for sports cars. Good driving and unexpected retirements and place changes helped to sustain the interest through these long events, and the meeting may well be remembered as a perfect finale to the Snetterton season.

After a poor getaway in the Le Mans start of the saloon car race, T. Sopwith quickly moved up to first place in his familiar dark blue Jaguar 3.4, and D. Shale's Austin-Healey followed in second place. By the fifth lap J. G. Sears (Austin-Healey) was challenging Shale, and for several laps the two cars went round within touching distance. Sears managed to overtake on lap 12, and at once there was more excitement when the black flag went out for R. A. Brightman, who lay fourth in his A.C. Aceca-Bristol. He came into the pits with the exhaust trailing on the ground, and mechanics worked feverishly to remove the hot tail pipe.

Sir Gawaine Bailey moved up to fourth place with the twin car to Sopwith's 3.4 Jaguar, but a few laps later he failed to appear, and R. F. North's Triumph TR2 succeeded him. Sir Gawaine's Jaguar had burst an oil pipe as well as developing trouble in the back axle. There was not a dull moment—Brightman was called in again, P. Jopp's Jaguar 2.4 burst a tyre, and H. Taylor (Ford Zephyr) came into the pits after his engine had run erratically for several laps.

The order was then unchanged, and Sopwith's Jaguar—sounding magnificent as it tore up the main straight—continued in the lead to win at the end of the hour, followed by the Austin-Healeys of Sears and Shale. It is rare to have a saloon car race of long duration, and the expectations of this one were entirely fulfilled.

In contrast, the 10-lap event for sports cars seemed very short but it was worth watching none the less, with a big battle going on between G. Hill (Lotus) and B. Halford (Lister-Jaguar). Halford led for two laps, and then Hill went ahead and continued in first place for the rest of the race.

At half-past four, in the fading sunshine, the three hours "Little Le Mans" began with D. Protheroe's Austin-Healey—making its first reappearance since its unfortunate accident at Mallory Park—in the lead, closely followed by I. Walker (Lotus Elite). Following in frequently changing order were J. Dashwood, W. E. Wilks and M. E. S. Bond, all in Frazer-Nashes; J. Lawry, driving one of three Elites in the race, was sixth.

Lap two saw Walker in front, and although Protheroe overtook on lap six, Walker held the lead until on the eleventh lap the order changed again, and Protheroe established himself in first place. Dusk fell and, in Le Mans style, the fair began to light up and get under way to the accompaniment of appropriate music; chickens frizzled in the paddock barbecue. In the gathering darkness the drivers switched on their side lights.

The Frazer-Nashes fell back and Lawry's Elite some way behind the leading cars, took third place. Then Walker was called in—one tail light of his Lotus was out—and Lawry moved up to second. Walker's tail lamp was fixed quickly and survived for a lap or two but then went out again, and he was called back to the pits; eventually he retired with this and other electrical troubles. Protheroe continued in the lead driving splendidly, followed by Lawry.

About half an hour from the end there was an unexpected development: at the hairpin, the right stub axle broke on Protheroe's Austin-Healey, and the wheel sheared off, complete with brake disc. Very slowly, with the car scraping on the remains of the brake assembly at the front end, he made his way to the pits, but there was nothing to be done to repair the fracture. He waited in the pits until the end of the race, and then in a shower of sparks drove slowly across the line to qualify as a finisher. Lawry won, and M. E. S. Bond's Frazer-Nash was second.

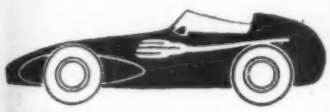
A gravity refuelling point was set up before the pits for the three-hour "Little Le Mans" sports car race. Taking on petrol in the dark here is the Frazer-Nash of M. E. S. Bond, which finished second

RESULTS (lap distance 2.71 miles)

Scratch races: saloon cars (1 hour): (a) up to 1,300 c.c.: 1, Alfa Romeo Spyder 1,290 (B. Ferrari), 26 laps, 59min 57.4sec, 70.52 m.p.h.; 2, Austin-Healey Sprite 948 (J. H. Gaston); 3, Austin-Healey Sprite 948 (J. Sprinzel). **(b) 1,301 to 2,000 c.c.:** 1, Triumph TR2 1,991 (R. F. North), 28 laps, 59min 29sec, 76.53 m.p.h.; 2, MGA 1,589 (A. T. Foster); 3, Triumph TR3 1,991 (L. J. Coe). **(c) over 2,000 c.c.:** 1, Jaguar 3.4 3,442 (T. Sopwith), 29 laps, 59min 35sec, 78.85 m.p.h. 2, Austin-Healey 2,639 (J. G. Sears); 3, Austin-Healey 2,639 (D. Shale).

Sports cars (10 laps): (a) up to 1,100 c.c.: 1, Lotus Eleven 1,096 (A. Stacey), 18min 6sec, 89.5 m.p.h.; 2, Lotus Eleven 1,098 (K. Hall); 3, Lotus Eleven 1,096 (R. Ashdown). **Fastest Lap:** Lotus Eleven 1,096 (A. Stacey), 1min 47.2sec, 90.67 m.p.h. **(b) over 1,100 c.c.:** 1, Lotus 1,991 (G. Hill), 17min 40.8sec, 91.65 m.p.h.; 2, Lister Jaguar 3,442 (B. Halford); 3, Aston Martin 2,922 (J. Dalton). **Fastest lap:** Lotus 1,991 (G. Hill), 1min 43.6sec, 93.82 m.p.h.

Autosport **Production Sports Car Championship Final (three hours): (a) up to 1,000 c.c.:** 1, Austin-Healey Sprite 948 (J. Sprinzel) 75 laps, 2hrs 58min 28sec, 68.08 m.p.h.; 2, Turner 948 (J. P. Baldam); 3, Turner 972 (A. J. Nurse). **(d) 1,001 to 1,300 c.c.:** 1, Lotus Elite 1,220 (J. Lawry) 86 laps, 2 hrs 59min 45.6sec, 77.5 m.p.h. **(b) 1,301 to 1,600 c.c.:** 1, MGA 1,489 (K. W. Mackenzie) 81 laps, 2hrs 59min 31.4sec, 73.09 m.p.h.; 2, Elva Courier 1,489 (J. P. Fergusson); 3, MGA 1,489 (C. P. Tooley). **(c) 1,601 to 3,500 c.c.:** 1, Frazer Nash 1,971 (M. E. S. Bond) 84 laps, 2hrs 58min 17sec, 76.33 m.p.h.; 2, Frazer Nash 1,971 (W. E. Wilks); 3, Triumph TR3 1,991 (S. A. Hurrell).



The Sport

F.I.A. Ruling
Casablanca
Rally Championship

BY PETER GARNIER

LAST WEEK the Federation Internationale de l'Automobile forgathered in Paris to discuss—and agree upon, where possible—plans for next season's motor sport. One or two very interesting things have emerged—the first being that Italy's Junior Formula has been accepted.

Basically, the cars concerned must be single-seater racing cars, without enclosing coachwork; to ensure this, a maximum body width of 95cm has been laid down. Only engines from F.I.A.-homologated touring cars may be used, and two engine sizes are allowed—1,100 and 1,300 c.c. A larger engine may be reduced (or a smaller engine increased) to either of these sizes—but only by altering the bore; the stroke must remain as standard. Overhead camshaft engines (single or double) are not allowed; only pushrod-operated o.h.v.—or, of course, side-valves. Two minimum weights are laid down; 360kg for the 1,100 c.c. cars and 400kg for the 1,300s; these weights must include electric starter, oil and water, but not fuel—which is to be high-grade commercial, not the 100-130 pn Avgas used in formula 1 and 2 this season. Minimum track and wheelbase are established at 110cm and 200cm.

The gear box must come from an F.I.A.-homologated touring car, too, but not necessarily from the same one as the engine, and the number of gears (and their ratios) may be altered. The number of carburettors and, of course, the inlet manifold design, may be altered; but where carburettors are standard, fuel injection may not be substituted—and vice versa. The braking system must remain as on the car from which the engine was taken—in fact, if the car had drum brakes, drums—not discs—must be used on the "racer." A self-locking differential is banned, and a roll-bar (to protect the driver in case the car capsizes) is compulsory.

So much for the Junior Formula—which is dealt with, so far as the cars are concerned, by "Johnny" Lurani, on pages 574-576.

No decision was reached as to the future of formula 1—or formula 2. Various suggestions were put forward, each with its adherents. One was that the existing formulæ of 2,500 c.c. unsupercharged (750 c.c. with supercharger), and 1,500 c.c. unsupercharged (500 c.c. with supercharger) should continue unchanged until the end of 1963; the second was that the delegates should consider, and study the possibilities of, a formula in which the only limit would be one on fuel consumption; and the third, put forward by the president, M. Perouse, was that the new formula 1 should be the same as the existing formula 2.

After the possibilities had been discussed for a considerable time it became clear that nothing would be decided within the time limits of the session. It was then arranged that at the next C.S.I. meeting, at Monte Carlo in January, the entire time would be devoted to settling this very important question. However, someone suggested that, if no decision were reached before January, it would not then be possible to give the manufacturers the full 24 months' warning of changes that is laid down by the F.I.A. (the new formula is due to come into effect on 1 January 1961).

After further long exchanges of views, it was decided that there will be a meeting in Paris on 15 December, and that the delegates will remain in session until a decision is reached.

Incidentally, there has been another suggestion for the future formulæ—put forward in this case by no less a man than Enzo Ferrari himself. He would like the creation of an Intercontinental Formula with a top limit of three litres. It would make possible, he says, contests between European and American cars—which are not now possible under the 2½-litre limit. Because of the vastly superior speed of cars built to such a formula, he suggests that races would have to be limited to permanent tracks such as Indianapolis and Monza, which have been specially built for the job (Avus and Montlhéry, too, presumably). He agrees that the present formula should be continued until the end of 1960, but that the fuel should be 100-octane commercial, not the present Avgas. To upgrade the present formula 2 to formula 1 would solve no problems, he reckons, and suggests that the next formula 1 should be for 2-litre cars, with a minimum weight limit of 1,320 lb. The cars would compete in a maximum of 12 races a year, on the circuits at present used for Championship events—but with a race distance of at least 400 miles.

One way and another, the future of formula 1 can be said to be in a fluid state.

AS WELL AS the foregoing, other points have emerged from the Paris meeting. Certain aspects of the Drivers' and the Sports Car championships have been standardized. In each of these contests there must be a minimum of five and a maximum of 12 qualifying events, and the scale of points for each will be as follows: 1st place, 8 points; 2nd, 6; 3rd, 4; 4th, 3; 5th, 2 (instead of 8, 6, 4, 3, 2 and 1, as at present).

It has been agreed that America shall have—in contradiction to the rules—two events counting for the Drivers' Championship; there is to be a formula 1 race bearing the title "United States Grand Prix" on 22 March next year; this will be additional to the Indianapolis 500 Miles race, which already counts towards—but has little influence on—the Drivers' Championship. Incidentally, there seems to be something a bit contradictory to the rules here, too; it says somewhere that a meeting has to be held a specified number of times before it can be given an International permit. However, it is a wonderful thing that America is to have a proper World Championship G.P., now that so many American drivers are performing in this field.

The Constructors' Championships (formula 1 and 2) will be marked in the same way as indicated in the previous paragraph. All those events counting for the Drivers' Championship will qualify for the Formula 1 Constructors' Championship. For the Formula 2 contest, the World Championship events open simultaneously to formula 1 and 2 will qualify, providing there are at least two marques represented, and at least three starters. As well as these, certain specified events, reserved only for formula 2, will qualify. These are as follows: Syracuse G.P., 26 April; Rouen G.P., 12 July; Watkins Glen G.P., 18 October; plus, if it can be organized, a formula 2 race at Monaco.

THIS SUNDAY comes the Moroccan Grand Prix, and with it the certain prospect of a British driver becoming World Champion for the first time in history. Enough has been said, written and conjectured about the possible outcome of this very important race. Hawthorn now leads, with Moss second and Tony Brooks third; Moss *could* beat Hawthorn, and, if Moss retires with no points and Tony Brooks wins, Brooks *could* move up into second place behind Hawthorn . . . if . . . if . . . . if; never has so much interest centred around the outcome of a race, but, in complete assurance of a British win, the B.R.D.C. has, even at this stage, been able, to organize a cocktail party at the Park Lane Hotel on 24 October to celebrate the occasion.

Apart from the Championship speculations, the outcome of the race itself is equally interesting. Last year Jean Behra won in a Maserati, and Maurice Trintignant was third with a B.R.M. These cars seemed suited to the circuit, and this race might well prove a B.R.M. victory—which would be immensely popular.

Vanwall will have three cars, driven by Stirling Moss, Tony Brooks (who has recently announced his engagement) and Stuart Lewis-Evans; Ferrari, too, have three cars—Mike Hawthorn, Olivier Gendebien, and Phil Hill—all will be Dino 246 or 256 models, Hill's being a lightweight version built with an eye to the lap record. B.R.M. have four entries, with Behra, Schell, Bonnier and Flockhart as drivers. Graham Hill, Cliff Allison, Ivor Bueb and Denis Taylor will drive Lotuses, and Maurice Trintignant Rob Walker's Cooper. Maseratis will be driven by Masten Gregory, Carroll Shelby, Hans Herrmann and Gerino Gerini.

Run concurrently with the Grand Prix, there is to be a formula 2 (1,500 c.c., unsupercharged) race, with British entries consisting of Jack Fairman, Jack Brabham and Bruce McLaren in Cooper-Climaxes. Bridger, Jugens, Kerguen, Picard, Lacaze and Guelfi will also drive Coopers.

So far as this race is concerned, there is considerable excitement over the outcome of *The Autocar* Formula 2 Championship. Leaders are now Lewis-Evans (33¼ points), Brabham (32½), McLaren (31) and Russell (31). Lewis-Evans, who is driving a Vanwall, cannot, of course, score at Casablanca. Brabham and McLaren, however, can very easily overtake Lewis-Evans, and either could become the winner. There will have to be six starters in the formula 2 race for it to count for the Championship.

IN THE 1959 International Rally Calendar, the R.A.C. Rally of Great Britain has been shifted from its customary date in March to 16-21 November; thus it

The Sport

becomes the last of the qualifying events for the Rally Championship. If there are any close battles going on for high positions in the Championship, this could well bring increased foreign interest to this event.

ON THE SUBJECT of the European Rally Championship, an interesting situation has arisen. B.M.C. have, quite rightly, objected to the fact that the Iberian Rally (23 to 26 October) is not long enough to comply with the minimum distance of 1,600 km stipulated for Rally Championship events. If the F.I.A. upholds this objection—and they can hardly fail to do so—then the Championship is decided; Pat Moss and Ann Wisdom become joint winners of the women's section. So far as the male side of it is concerned, Anderson leads Peter Harper by four points. However, there is some doubt about Anderson's class position in the Acropolis Rally. Whether a protest has been lodged against his position is not known, but if the outcome is that he loses his Acropolis Rally points, Peter Harper becomes European Rally Champion—and Britain provides the winners of just about all the championships that are going.

ONCE AGAIN Goff and Nina Imhof have been asked to organize the B.B.C.-London M.C. Television Trial, the location of which, in previous years, has been kept secret. This time spectators will be welcome, and there will be no charge for admission or car parking. The trial will be held near Wendover, in Buckinghamshire, and full details of the location, together with car-stickers, can be obtained from Mrs. Imhof, at Robin Hill, Coombe Hill Road, Kingston-on-Thames.

This is the seventh T.V. Trial and, as usual, three invited teams, representing the North, Midlands and South, will compete against each other. Production will be by Bill Duncalf, and commentary by Raymond Baxter.

FINAL RESULTS OF the *Autosport* Series-Production Sports Car Championship for 1958 are as follows:—

1, Turner (J. P. Baldam), 72 points; 2, Turner (A. Nurse), 56; 3, Austin-Healey (D. I. Protheroe), 55; 4 (equal), MGA (K. W. Mackenzie) and Lotus Elite (I. Walker), 54; 6, Turner (B. A. M. Gilbert), 48; 7, Lotus Elite (J. Lawry), 47; 8, Frazer-Nash (M. Bond), 45; 9, Elva Courier (P. E. Gammon), 41. **Team Prize:** Turner (Gilbert, Nurse and Baldam). **Class awards:** Up to 1,000 c.c.: Turner (A. Nurse). 1,000 to 1,300 c.c.: Lotus Elite (I. Walker). 1,300 to 1,600 c.c.: Elva Courier (P. Gammon). Over 1,600 c.c.: Frazer-Nash (M. Bond).

AS IN last year's race, the Argentine *Gran Premio* will be for standard cars, as well as the "modified stock" coupés which have always featured in this event. This year the standard cars, with prizes presented by Y.P.F., the state-owned oil concern, are to be in three classes: petrol-engined cars up to 1,200 c.c. and diesels up to two litres; European cars between 1,201 and 1,500 c.c., and American cars built between 1946 and 1952 (excluding overhead valve vee-eights of more than 4,200 c.c.); the third class is unlimited. The "modified stock" cars must not exceed 4,100 c.c., and there is a number of restrictions on tuning; bodywork must be of the same make and type—although not necessarily of the same model or year—as was fitted to the car concerned. By European standards, this is a somewhat strange classification—but the race itself is hardly orthodox.

Starting at midnight on December 4-5, cars will leave at 30-second intervals, and on the first day will cover a circuitous route of 632 miles between Buenos Aires and Cordoba; on successive days, with occasional rest days in between, they will cover the total *race* (not rally) distance of 3,999.6 miles. The longest stage will be the first, though the last (631 miles) is almost as long. The shortest stage will be 265 miles only—but they will be 265 mountainous miles, and will be covered in the intense heat of northern Argentina in December, during which temperatures of 120 deg F are common.

THE CZECH Skoda works have built two new sports-racing cars, using an 1,100 c.c., twin-o.h.c. engine basically similar to the o.h.v. unit of the 440 saloon. Two double-choke carburettors are to be used, but no decision has been taken whether they are to be Webers or Jikovs—a local product. Ignition is by twin Scintilla magnetos, and the power output is said to be well over 80 b.h.p. No details of chassis or body are available, except that swing-axles are used at the rear, and that the body work is of light alloy. The cars are being developed under the supervision of Vaclav Bobek, the Czech rally driver; two were entered for the Zeltweg Airfield Race in Austria, but did not appear.

FINAL RESULTS OF the B.R.S.C.C. National Saloon Car Championship are as follows:

Overall Results: 1, J. G. Sears (Austin A.105). 2, T. Sopwith (Jaguar 3.4). 3, J. Sprinzel (Austin A.35). 4, G. C. Shepherd (Austin A.35). 5, A. T. Foster (M.G. Magnette). 6, J. M. Uren (Ford Zephyr).

This makes four B.M.C. cars out of six, which isn't a bad record.

Class results are as follows:

Up to 1,200 c.c.: 1, J. Sprinzel (Austin A.35). 2, G. C. Shepherd (Austin A.35). 3, F. W. Marriott (Morris Minor 1,000). **1,201 to 1,600 c.c.:** A. T. Foster (M.G. Magnette). 2, L. Leston (Riley 1.5). 3, T. Bridger (Borgward Isabella). **1,601 to 2,700 c.c.:** 1, J. G. Sears (Austin A.105). 2, J. M. Uren (Ford Zephyr). 3, D. Haynes (Ford Zephyr). **Over 2,700 c.c.:** T. Sopwith (Jaguar 3.4). 2, Sir G. Baillie (Jaguar 3.4). 3, D. Parker (Jensen 541).

The Championship has been so popular this year that the B.R.S.C.C. has decided to run it again next season, and, in order to bring it into line with International racing, it will be run according to Appendix J, Category 1, Group 3—Special Touring cars; capacity classes will also be modified to conform with Appendix J. Another alteration is that qualifying events will no longer be restricted to meetings run by the B.R.S.C.C. itself. Competitors will be able to gain points at all National Open and International meetings which include a race for cars of this category.

THE CONTEST held at Los Angeles last Sunday seems to have come in for a fair amount of publicity. It was originally entered in the Calendar of National Events with Foreign Participation Authorized, by means of an amendment issued by the F.I.A. on 18 June. Subsequently, it was referred to in the Press as the United States G.P., though how it came to qualify for this title is hard to say; the International Sporting Code says that the words "Grand Prix," accompanied by the name of the country, will be reserved for the exclusive use of the A.C.N. (in this case the Automobile Competition Committee); in any case, it had not an international permit, it was for sports cars, and in fact Indianapolis is technically speaking the United States G.P., in that it is America's qualifying event for the Drivers' Championship.

Stirling Moss was originally entered with a 4.5-litre Maserati, but, because of the nature of the permit, the eight first-grade drivers listed by the F.I.A. were not allowed to compete; the R.A.C., therefore, ruled that Stirling must not drive. With typical American enterprise, the organizers set about getting the permit altered to International—but then the Casablanca organizers stepped in, and rightly too, quoting the bit in the International Sporting Code which says: "Two (International) competitions organized more than 4,000 kilometres apart shall be considered as clashing if there does not exist between them a lapse of at least 21 days."

All of which constitutes an almost unprecedented example of sticking to the rules.

Winner of the race was Chuck Daigh, in one of Lance Reventlow's new Scarab sports cars, and Roy Salvadori, sole British entry, finished fourth in an Aston Martin.

HERE ARE SOME facts and figures about the next Monte Carlo Rally, issued

Last week in London, Mike Hawthorn (left), and Eamonn Andrews (right) selected from a bevy of beautiful contestants, Miss Triumph (in fact, Miss Sheila Lunnon). The girls were fiancées, girl friends or daughters of Triumph owners—or owned one of the cars themselves

The Sport

by the M.C.R.B.C.C.—starting with the proposed programme: From Sunday, 18 January, to Wednesday, 21 January—road section to Monte Carlo from the nine starting points (Athens, Glasgow, The Hague, Lisbon, Munich, Paris, Rome, Stockholm and Warsaw). Wednesday, 21 January—first arrival at Monte Carlo, and first technical inspection. Wednesday, 21 January to Thursday, 22 January—final mountain test for all eligible competitors, and second technical inspection. Friday, 23 January—rest day, preparation of provisional classification, and M.C.R.B.C.C. cocktail party. Saturday, 24 January—*Concours de Confort*, driving test, and gymkhana, Sunday, 25 January—Procession and prize-giving—and Gala Dinner.

The total quota of entries allocated to Great Britain will again be 95; closing date for entries is 8 November; selection by the A.C.N., 10 November; latest date for completed accepted entries, 24 November; and selection of reserves (if allowed), 4 December. Classes and Categories are as follows: Group 1 (normal series production touring cars), Group 2 (modified production touring cars), Group 3 (special series production touring cars), Group 4 (Normal Grand Touring cars), Group 5 (modified Grand Touring cars). Vehicles in Groups 1 and 2 constitute Category 1, and in Groups 3, 4 and 5, Category 2. Grand Touring special series and sports cars are not eligible. Cylinder capacity classes will be as follows: Class 1, over 2,000 c.c.; Class 2, 1,300 to 2,000 c.c.; Class 3, 1,000 to 1,300 c.c.; Class 4, below 1,000 c.c.

Maps required for the French sections of the route are as follows (all Michelin): 51, 52, 55, 60, 64, 68, 69, 70, 73, 74, 76, 77, 80, 81 and 84. Of these, numbers 51, 70, 73, 77, 80 may be the 1957 edition; all the others must be 1958.

COMING SHORTLY

OCTOBER 18-19.—Chiltern C.C. Mercury Rally, Bell House Hotel, Beaconsfield. 10 p.m.
19.—B.A.R.C. and Yorkshire S.C.C. Greenwood Cup, from Barnes and Winder, Ltd., White Cross, Guiseley, near Leeds, 1 p.m.
19.—MOROCCAN GRAND PRIX.
19.—S.U.N.B.A.C. trial, Swan Hotel, Broadway, 10.30 a.m.
19.—Fiat 500/600 Club rally and gymkhana, Heston Airport, noon.
19.—Romford E.C.C. driving tests, Warley Barracks, Brentwood, 2 p.m.
25.—Land-Rover O.C., Windermere Rally.
25.—Forces M.C., City of London Treasure Hunt, Smithfield Rotunda, London, E.C.1, 2.30 p.m.
25-26.—North London E.C.C., Radcap Rally, 10.01 p.m., from W. Waters and Sons' garage, Hatfield.
25-26.—Tunbridge Wells M.C., night navigation rally from Shelley Arms Hotel, Nutley, Sussex, 9 p.m.
25-26.—Ford Sports M.C. Five Star Rally from Reynolds Motors, Ltd., Dagenham, Essex, 8 p.m.
25-26.—Peterborough M.C., Autumn Navigational Rally from London, Bedford and Peterborough, 11 p.m.
25-26.—Haslemere M.C. Hunter's Moon Rally, 7.30 p.m., Hindhead.
25-26.—Nottingham S.C.C. rally, Nottingham and Wrexham, 10.01 p.m.
26.—Leicestershire C.C. trial at Kings Hill, near Uppingham, 11.30 a.m.
26.—London M.C. Members' sprint meeting at Brands Hatch (anti-clockwise).
26.—Huddersfield M.C. driving tests, E. Fox and Sons, Ltd., Calder Bank Mills, Dewsbury, at 10 a.m.
26.—Sheffield and Hallamshire M.C. High Peak sporting trial, from Millstone Hotel, Hathersage, Sheffield, 10 a.m.
26.—Surrey S.M.C. hill-climb, Harlesford, Buckinghamshire.
29.—Camel Vale M.C., President's Rally from Victoria Garage, near Roche, 7 p.m.
NOVEMBER 1-2.—Liverpool M.C., Horsman-Monte Rally from Victor Horsman, Ltd., garage, Queensferry, near Chester, 7.31 p.m.

RACE AND RALLY REGULATIONS RECEIVED

Huddersfield M.C.—A driving test meeting is being arranged for 10 a.m., 26 October, at E. Fox and Sons, Ltd., Calder Bank Mills, Dewsbury. Entries, limit 50, by 20 October, fee 15s, to A. F. Dick, Hollybank, 85, Huddersfield Road, Liversedge, Yorkshire.

Bristol Aeroplane Company M.C.—The Cross Trophy Rally will be held on 1-2 November, starting Railway Hotel and Grove Garage, Patchway, Bristol, at 10.31 p.m. Entries, fee £1, by 24 October to M. E. A. Manning, Foresters, Silverhill, Rudgeway, Bristol.

Stockport M.C.—Revenge Rally, Fiveways Hotel, Macclesfield Road, Hazel Grove, at 10 a.m. on 9 November. Entries to D. M. Bell, Fairlie, 17, Longnor Road, Hazel Grove, by 5 November, fee 12s 6d.

Plymouth M.C.—The annual Mancunian Rally to be held 8-9 November under Restricted Permit. Start Turnbulls Garage, Ltd., Breton Side, Plymouth, 11 p.m. Course 200 miles. Details from P. T. Shipman, 81, Fleet Street, Torquay, Devon.

Middlesex County A.C.—Experts Night Rally, 18 November, from Busy Bee Café, Watford By-pass, 6 p.m.; 100 miles of nocturnal navigation. Details from J. C. Smith, 53, Bagshot Road, Bush Hill Park, Enfield, Middlesex.

Club News

North Staffordshire M.C.—Results of the race meeting on the Silverstone Club circuit on 27 September were as follows:

Event 1A: Lotus XI (P. Boshier-Jones). **Event 1B:** Austin (J. S. French). **Event 1C:** Victoria-Climax (J. C. Brierley). **Event 2:** Lotus VI (K. D. Laverton). **Event 3:** Cooper-Norton (G. S. Symonds). **Event 4:** JBW-Maserati (B. Naylor). **Event 5:** Cooper-J.A.P. (P. G. W. Mullard). **Event 6:** M.G. TC (V. D. Clark). **Class 8A:** Cooper-Climax formula 2 (J. T. Stuart). **Event 8B:** Victoria-Climax (J. C. Brierley). **Event 9A:** Austin (P. A. Cross). **Event 9B:** Austin-Rees (D. Rees). **Event 10:** Lister-Bristol (J. Randles).

Lothian C.C.—Results of the gymkhana on 5 October were:

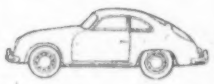
Best performance: F.M.C. (J. S. McCaig); **Class I—Open:** J. S. McCaig; **Closed:** Renault Dauphine (F. S. Stang); **Class II—Open:** MGA (J. B. Tunnoch); **Closed:** MGA (R. M. Longmair); **Class III: Open:** TR3 (D. M. Bertram); **Closed:** Standard Vanguard (J. C. Brown); **Ladies' Event:** 1, TR2 (Mrs. Brown); 2, M.G. (Miss Mackinnon); 3, Morris (Miss Johnston).

Harleyford Speed Trial, organized jointly by Allard O.C., Brent Vale M.C., Hertfordshire County Club, North London E.C.C. and Triumph S.O.A. on 5 October at Harleyford Manor yielded the following results:

Saloon cars to 1,300 c.c.: 1, Ford Anglia (R. Kinch); **Saloon cars over 1,300 c.c.:** 1, Allard (G. Viola); 2, Allard (F. Lewis); **Open cars to 1,200 c.c.:** 1, Austin-Healey Sprite (M. Murray); **Open cars to 1,500 c.c.:** 1, MGA (C. P. Tooley); **Open cars to 2,500 c.c.:** 1, Morgan (A. Blair); 2, TR3 (D. W. Price); 3, TR2 (A. Gaw); **Open cars over 2,500 c.c.:** 1, Allard (D. Farrell); 2, Allard (Mrs. Farrell); **Specials:** 1, Allard (S. Allard); **Racing cars:** Cooper VIII (D. Good); **Team Prize:** All Allards (P. Morel, G. Viola and F. Lewis).

Pembrokeshire M.C.—The results of the Lydstep Hill Climb on 4 October were:

Fastest time, Graham Ace Trophy: Cooper (A. T. Norton); **Gatehouse Estates Trophy:** Cooper (J. B. Welton); **Harold Styche Trophy:** Cooper (Miss P. Brock); **Gordon Griffiths Trophy:** Turner (J. Handley); **Royal Lion Trophy:** Lotus-Bristol (P. H. G. Cottrell); **Prince of Wales Trophy:** Turner (J. Rhodes); **Western Telegraph Trophy:** Morris Minor (C. H. J. Davis); **Alex Munt Trophy:** Porsche (T. Pascoe); **George Wheeler Trophy:** Jaguar XK150 (A. T. Norton).



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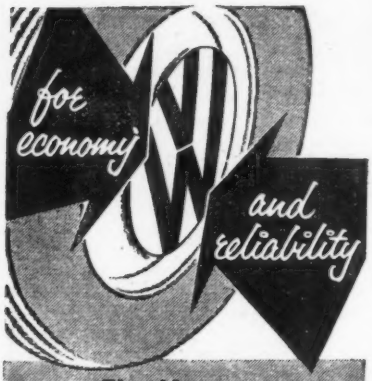

The 40 m.p.g.

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The Autocar, 5th September, 1958

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NEW CAR PRICES

	U.K. List			With Tax		
	£	s	d	£	s	d
A.C.						
Ace	1,188	0	0	1,783	7	0
Ace-Bristol	1,443	0	0	2,165	17	0
Aceca	1,446	0	0	2,170	7	0
Aceca-Bristol	1,700	0	0	2,551	7	0
ALFA ROMEO						
Giulietta	1,278	0	0	1,918	0	0
Giulietta TI	1,395	0	0	2,093	17	0
Giulietta Veloce	1,798	0	0	2,698	7	0
1900 Super	1,665	0	0	2,498	17	0
Super Sprint	2,250	0	0	3,376	7	0
ALLARD						
Palm Beach (Ford)	1,050	0	0	1,576	7	0
Palm Beach (Jaguar)	1,300	0	0	1,951	7	0
Gran Turismo	1,700	0	0	2,551	7	0
ALVIS						
3-litre	1,995	0	0	2,993	17	0
Convertible	2,195	0	0	3,293	17	0
AMBASSADOR						
Super 4-door	1,630	0	0	2,446	7	0
Estate car	1,725	0	0	2,588	17	0
Custom 4-door	1,700	0	0	2,551	7	0
Country estate car	1,795	0	0	2,693	17	0
ARMSTRONG SIDDELEY						
Star Sapphire	1,763	0	0	2,645	17	0
Sapphire 346 limousine	1,910	0	0	2,866	7	0
(automatic)	2,099	0	0	3,149	17	0
ASTON MARTIN						
DB Mk. III	2,050	0	0	3,076	7	0
Convertible	2,300	0	0	3,451	7	0
DB4	2,650	0	0	3,976	7	0
ASTRA						
Utility	308	0	0	471	16	0
AUSTIN						
A.35 2-door	379	0	0	569	17	0
2-door de luxe	387	15	0	582	19	6
A.35 4-door	396	10	0	596	2	0
4-door de luxe	400	0	0	601	7	0
Countryman	444	0	0	667	7	0
A.40	450	0	0	676	7	0
A.40 *de luxe*	458	10	0	689	2	0
A.55 Cambridge	538	0	0	808	7	0
A.55 *de luxe*	570	0	0	856	7	0
A.95 Westminster	689	0	0	1,034	17	0
A.95 *de luxe*	719	0	0	1,079	17	0
Countryman	834	0	0	1,252	7	0
A.105	823	0	0	1,235	17	0
(automatic)	835	10	0	1,329	12	0
Vanden Plas	982	10	0	1,475	2	0
(automatic)	1,045	0	0	1,568	17	0
Gipsy	(5)	0	0	650	0	0
(diesel)	755	0	0	755	0	0
AUSTIN-HEALEY						
Sprite	445	0	0	686	17	0
100-Six	817	0	0	1,226	17	0
BENTLEY						
Series S	3,695	0	0	5,542	17	0
L.W.B.	4,595	0	0	6,890	17	0
Hooper	5,090	0	0	7,636	7	0
H. J. Mulliner	5,455	0	0	8,183	17	0
James Young	4,990	0	0	7,486	7	0
Continental						
H. J. Mulliner 2-door	5,275	0	0	7,913	17	0
Four-door	5,355	0	0	8,033	17	0
Park Ward	4,995	0	0	7,493	17	0
James Young 2-door	5,385	0	0	8,078	17	0
Four-door	5,465	0	0	8,198	17	0
BERKELEY						
Two-seater 328 c.c.	332	7	6	490	18	3
492 c.c. de luxe	432	9	0	650	0	0
B.M.W.						
501 2.6	1,638	0	0	2,458	7	0
502 2.6	1,792	0	0	2,678	7	0
502 3.2	1,970	0	0	2,956	7	0
502S 3.2	2,165	0	0	3,248	17	0
503 cabriolet coupé	3,500	0	0	5,251	7	0
507	3,100	0	0	4,651	7	0
BORGWARD						
Isabella	830	0	0	1,245	7	0
Combi estate car	880	0	0	1,321	7	0
Touring sport	950	0	0	1,426	7	0
TS coupé	1,330	0	0	1,996	7	0
BRISTOL						
406	2,995	0	0	4,493	17	0
BUICK						
63 Century	2,175	0	0	3,263	17	0
CADILLAC						
6309 Fleetwood	3,425	0	0	5,138	17	0
6239D sedan de ville	3,125	0	0	4,688	17	0
CHEVROLET						
Bel Air	1,410	0	0	2,116	7	0
Sport	1,440	0	0	2,161	7	0
Convertible	1,555	0	0	2,333	17	0
Nomad estate car	1,500	0	0	2,251	7	0
Corvette	1,906	0	0	2,860	7	0
CHRYSLER						
300C	2,740	0	0	4,111	7	0
Convertible	2,960	0	0	4,441	7	0
Imperial	2,885	0	0	4,238	17	0
Crown	3,045	0	0	4,568	17	0
CITROEN						
2 c.v.	398	0	0	598	7	0
ID19	998	0	0	1,498	7	0
DS19	1,150	0	0	1,726	7	0
DAIMLER						
One-O-Four	1,595	15	4	2,395	0	0
Majestic	1,662	8	8	2,495	0	0
DK400A	2,795	14	5	4,195	0	0
DK400B	2,875	15	4	4,315	0	0
Hooper Limousine	4,385	0	0	6,578	17	0

	U.K. List			With Tax		
	£	s	d	£	s	d
D.B.						
Rally HBR5	1,299	2	0	1,950	0	0
DELLOW						
Mark VI	575	0	0	862	17	0
D.K.W.						
Fixed-head	765	0	0	1,148	17	0
Four-door	798	0	0	1,198	7	0
Universal estate car	830	0	0	1,246	7	0
1000 fixed-head	850	0	0	1,276	7	0
DODGE						
Custom Royal	2,040	0	0	3,061	7	0
EDSEL						
Pacer	1,635	0	0	2,453	17	0
Corsair	1,991	0	0	2,987	17	0
Citation hardtop	2,100	10	0	3,152	2	0
FACEL VEGA						
FVS hardtop	3,150	0	0	4,726	7	0
(automatic)	2,980	0	0	4,471	7	0
FAIRTHORPE						
Atomota	426	0	0	640	7	0
Electron Minor	479	0	0	719	17	0
Electron Mk. II	769	0	0	1,154	17	0
FIAT						
500 *de luxe*	370	0	0	556	7	0
600	432	0	0	649	7	0
Convertible	452	0	0	679	7	0
Multipla 4/5	532	0	0	799	7	0
Multipla 6	540	0	0	811	7	0
1100	578	10	0	869	2	0
1200 *Full Light*	798	10	0	1,199	2	0
1400B	744	0	0	1,162	7	0
1900B	980	0	0	1,471	7	0
1900B *Full Light*	1,385	0	0	2,078	17	0
FORD						
Popular	295	0	0	443	17	0
Anglia	380	0	0	571	7	0
Anglia de luxe	400	0	0	601	7	0
Prefect	415	0	0	623	17	0
Prefect de luxe	438	0	0	658	8	0
Escort	434	0	0	652	7	0
Squire	463	0	0	695	17	0
Consul	545	0	0	818	17	0
Consul de luxe	580	0	0	871	7	0
Convertible	660	0	0	991	7	0
Estate car	760	0	0	1,141	7	0
Zephyr	610	0	0	916	7	0
(automatic)	725	0	0	1,088	17	0
Convertible	778	0	0	1,168	7	0
Estate car	825	0	0	1,238	17	0
Zodiac	675	0	0	1,013	17	0
(automatic)	790	0	0	1,187	7	0
Convertible	873	0	0	1,310	17	0
Estate car	895	0	0	1,343	17	0
FORD (American)						
Thunderbird hardtop	2,133	10	0	3,201	12	
FORD (Canadian)						
Custom 300	1,307	0	0	1,961	17	0
Fairlane 500 Town	1,377	0	0	2,066	17	0
500 *Town Victoria*	1,409	0	0	2,144	17	0
Ranch Wagon	1,362	0	0	2,044	7	0
FORD (Germany)						
12M	702	0	0	1,054	7	0
15M	763	0	0	1,145	17	0
FRAZER NASH						
Sebring	2,500	0	0	3,761	7	0
GOGGOMOBIL						
Regent 300	329	0	0	494	17	0
Regent 400	342	6	0	514	16	0
Mayfair 300	416	0	0	625	7	0
Convertible	458	0	0	688	17	0
Mayfair 400	428	13	4	644	7	0
Convertible	471	0	0	707	17	0
HILLMAN						
Minx Special	498	0	0	748	7	0
Minx de luxe	529	0	0	794	17	0
Convertible	598	0	0	898	7	0
Estate car	598	0	0	898	7	0
Husky	465	0	0	698	17	0
HUMBER						
Hawk	840	0	0	1,261	7	0
(automatic)	955	0	0	1,433	17	0
Estate car	975	0	0	1,463	17	0
Touring limousine	920	0	0	1,381	7	0
Super Snipe	995	0	0	1,493	17	0
(automatic)	1,110	0	0	1,666	7	0
Estate car	1,160	0	0	1,741	7	0
Touring limousine	1,095	0	0	1,643	17	0
ISETTA (Gt. Britain)						
300	232	8	5	349	19	6
600	449	0	0	676	0	0
JAGUAR						
2.4	996	0	0	1,495	7	0
(automatic)	1,139	0	0	1,709	17	0
Special equip. model	1,019	0	0	1,529	17	0
3.4	1,114	0	0	1,672	7	0
(automatic)	1,242	0	0	1,864	7	0
XK150 hardtop	1,175	0	0	1,763	17	0
(automatic)	1,303	0	0	1,955	17	0
Special equip. model	1,292	0	0	1,939	7	0
Convertible	1,195	0	0	1,793	17	0
Mark VII	1,219	0	0	1,829	17	0
(automatic)	1,331	0	0	1,997	17	0
Mark IX	1,329	0	0	1,994	17	0
(automatic)	1,441	0	0	2,162	17	0
JENSEN						
541	1,435	0	0	2,153	17	0
541 *de luxe*	1,750	0	0	2,626	7	0
541 R	1,910	0	0	2,866	7	0
Interceptor	1,800	0	0	2,701	7	0

NEW CAR PRICES

	U.K. Tax £	s	d	With Tax £	s	d
LANCIA						
Appia Series II	1,125	0	0	1,668	17	0
Aurelia Gran Turismo	2,230	0	0	3,346	7	0
Flaminia	2,500	0	0	3,715	7	0
LINCOLN						
Capri	2,600	0	0	3,901	7	0
Première	2,869	10	0	4,305	12	0
Continental hardtop	3,142	10	0	4,715	2	0
LLOYD						
LP600	390	0	0	586	7	0
LC600 Cabrio	427	0	0	641	17	0
LS600 Combi	405	0	0	608	17	0
LOTUS						
Seven	690	0	0	1,036	7	0
Elite	1,300	0	0	1,951	7	0
Sports	1,021	0	0	1,511	2	0
Club	1,309	0	0	1,937	7	0
Le Mans 75	1,625	0	0	2,405	4	0
MEADOWS						
Frisky	299	0	0	449	17	0
Friskysport	322	0	0	484	7	0
MERCEDES-BENZ						
180	1,195	0	0	1,793	17	0
180D (diesel)	1,295	0	0	1,889	17	0
190	1,250	0	0	1,876	7	0
190SL	1,930	0	0	2,896	7	0
219	1,430	0	0	2,146	7	0
220S	1,595	0	0	2,393	17	0
220SE	1,862	0	0	2,794	7	0
300 (automatic)	2,600	0	0	5,401	7	0
300SL Roadster	3,750	0	0	5,626	7	0
MERCURY (American)						
Medalist	1,503	0	0	2,255	17	0
Monterey	1,561	10	0	2,343	10	0
Montclair	1,888	0	0	2,833	7	0
Parklane	2,224	10	0	3,368	2	0
Commuter estate car	1,778	0	0	2,668	7	0
MERCURY (Canadian)						
Monterey	1,481	0	0	2,222	17	0
Phaeton	1,640	0	0	2,461	7	0
Montclair	1,716	0	0	2,575	7	0
Phaeton	1,765	0	0	2,648	17	0
MESSERSCHMITT						
TG 500	435	0	0	651	5	8
METROPOLITAN						
Hardtop	498	10	0	749	2	0
Convertible	516	0	0	775	7	0
M.G.						
MGA	663	0	0	995	17	0
Hardtop	724	0	0	1,087	7	0
Twin Cam MGA	843	0	0	1,265	17	0
Magnette	714	0	0	1,072	7	0
MORGAN						
4/4 Series II	498	0	0	748	7	0
Competition	550	0	0	826	7	0
Plus 4 (TR) 2-seater	645	0	0	968	17	0
Convertible	693	0	0	1,040	17	0
Plus 4 (Vanguard)	594	0	0	892	7	0
Convertible	641	0	0	962	17	0
MORRIS						
Minor 1000 2-door	416	0	0	625	7	0
2-door de luxe	433	10	0	651	12	0
4-door	441	0	0	662	17	0
4-door de luxe	462	0	0	694	7	0
Tourer	416	0	0	625	7	0
Tourer de luxe	433	0	0	651	12	0
Traveller	471	10	0	708	12	0
Traveller de luxe	488	10	0	734	2	0
Cowley	555	10	0	834	12	0
Oxford III	589	0	0	884	17	0
Traveller	665	0	0	999	17	0
OLDSMOBILE						
88	1,820	0	0	2,731	7	0
Super 88	1,965	0	0	2,948	17	0
98	2,260	0	0	3,391	7	0
PACKARD						
4-door Sedan	1,680	0	0	2,521	7	0
Station Wagon	1,745	0	0	2,623	17	0
Hawk hardtop	2,004	0	0	3,007	7	0
PANHARD						
Dyna Grand Standing	702	8	8	1,055	0	0
Convertible	1,032	8	8	1,550	0	0
PEERLESS						
G.T. 2-litre	998	0	0	1,498	7	0
PEUGEOT						
203	633	9	1	952	8	2
403	796	2	11	1,195	11	5
Estate car	865	0	0	1,298	17	0
PLYMOUTH						
Savoy Vee-8	1,718	0	0	2,578	7	0
Belvedere convertible	1,790	0	0	2,686	7	0
Savoy Suburban	1,915	0	0	2,773	17	0
Fury	1,890	0	0	2,791	7	0
PONTIAC						
Chieftain Catalina	1,980	0	0	2,971	7	0
Bonneville Custom	2,300	0	0	3,461	7	0
Super Chief Catalina	2,040	0	0	3,061	7	0
Star Chief Catalina	2,150	0	0	3,226	7	0
PORSCHE						
356A/1600 fixed head	1,330	0	0	1,996	7	0
D-type convertible	1,330	0	0	1,996	7	0
Hardtop (detachable)	1,450	0	0	2,176	7	0
Cabriolet (detachable)	1,490	0	0	2,236	7	0
356A/1500 fixed head	2,100	0	0	3,151	7	0
Carrera hardtop	2,220	0	0	3,331	7	0
Carrera Cabriolet	2,260	0	0	3,391	7	0
PRINCESS						
IV	2,250	0	0	3,376	7	0
IV limousine	2,360	0	0	3,541	7	0
L.W.B. models	2,150	0	0	3,226	7	0

	U.K. Tax £	s	d	With Tax £	s	d
RAMBLER						
De Luxe	1,250	0	0	1,876	7	0
Super	1,285	0	0	1,928	17	0
Estate Car	1,375	0	0	2,063	17	0
Custom	1,350	0	0	2,026	7	0
Estate Car	1,440	0	0	2,161	7	0
RENAULT						
750	437	0	0	656	17	0
Dauphine	505	0	0	758	17	0
(Ferlec clutch)	530	10	0	797	2	0
Prégate de luxe	894	10	0	1,343	2	0
Transfluide	987	0	0	1,481	17	0
Domaine estate car	894	10	0	1,343	2	0
RILEY						
One-point-five	575	0	0	863	17	0
Two-point-six	940	0	0	1,411	7	0
(automatic)	1,045	0	0	1,568	17	0
ROLLS-ROYCE						
Silver Cloud	3,795	0	0	5,693	17	0
Limousine	4,595	0	0	6,783	17	0
Hooper	5,185	0	0	7,778	17	0
J. H. Mulliner	5,550	0	0	8,326	7	0
James Young	5,085	0	0	7 628	17	0
Silver Wraith						
Park Ward	5,493	0	0	8,243	17	0
7-passenger	5,805	0	0	8,708	17	0
H. J. Mulliner	5,625	0	0	8,438	17	0
Hooper limousine	5,630	0	0	8,446	7	0
7-passenger	5,805	0	0	8,708	17	0
James Young	5,680	0	0	8,521	7	0
ROVER						
60	899	0	0	1,349	17	0
75	985	0	0	1,478	17	0
90	1,025	0	0	1,538	17	0
105	1,085	0	0	1,628	17	0
3-litre	1,175	0	0	1,763	17	0
(automatic)	1,280	0	0	1,921	7	0
Land-Rover II 88	640	0	0	640	0	0
Diesel	740	0	0	740	0	0
109in Basic	730	0	0	730	0	0
Diesel	820	0	0	820	0	0
107in estate car	815	0	0	1,223	17	0
SIMCA ARONDE						
Aronde 1300	532	0	0	799	7	0
Aronde Chatelaine	650	0	0	976	7	0
Elysée 1300	599	0	0	899	17	0
Monthléry	625	0	0	938	17	0
Grande Large (Flash)	679	0	0	1,019	17	0
Grande Large (Special)	705	0	0	1,058	17	0
SIMCA VEDETTE						
Beaulieu	965	10	0	1,449	12	0
SINGER						
Gazelle IIA	598	0	0	898	7	0
Convertible	665	0	0	998	17	0
Estate car	665	0	0	998	17	0
SKODA						
440	525	0	0	788	17	0
Estate car	695	0	0	1,043	17	0
450 convertible	725	0	0	1,088	17	0
STANDARD						
Eight	430	0	0	646	7	0
Ten	440	0	0	661	7	0
Pennant	485	0	0	728	17	0
Companion estate car	495	0	0	743	17	0
Ensign	599	0	0	899	17	0
Vignale Vanguard	695	0	0	1,043	17	0
(automatic)	810	0	0	1,216	7	0
Estate car	770	10	0	1,157	2	0
STUDEBAKER						
Scotsman	1,130	0	0	1,696	7	0
Estate car	1,240	0	0	1,861	7	0
Commander	1,400	0	0	2,101	7	0
President	1,490	0	0	2,236	7	0
SUNBEAM						
Rapier	695	0	0	1,043	17	0
Convertible	735	0	0	1,103	17	0
TRIUMPH						
TR3	699	0	0	1,049	17	0
Hardtop	734	0	0	1,102	7	0
TURNER						
A.35 Sports	575	0	0	862	17	0
UNICAR						
Model T de luxe	283	0	0	425	17	0
VAUXHALL						
Victor	498	0	0	748	7	0
Victor Super	520	0	0	781	7	0
Estate car	620	0	0	931	7	0
Velox III	655	0	0	983	17	0
Cresta II	715	0	0	1,073	17	0
VOLKSWAGEN						
Basic	435	0	0	653	17	0
De Luxe	505	0	0	758	17	0
Convertible	682	10	0	1,025	2	0
Karmann-Ghia coupé	822	10	0	1,235	2	0
Convertible	929	0	0	1,394	17	0
VOLVO						
122S	932	0	10	1,399	1	10
WOLSELEY						
1500	530	0	0	796	7	0
Fifteen-fifty	660	0	0	991	7	0
Six-ninety III	850	0	0	1,276	7	0
(automatic)	955	0	0	1,433	17	0
THREE-WHEELERS						
A.C. Petite I	319	0	0	399	8	6
Bond 2-seater	222	0	0	279	5	9
4-seater	254	0	0	319	8	11
Coronet	360	0	0	449	15	6
Heinkel	320	0	0	403	6	6
Messerschmitt KR200	260	0	0	325	6	4
Reliant Regal	364	0	0	433	3	6
Tourette Senior	259	0	0	325	0	11

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Trade and Industry

Imperial Chemical Industries, Ltd., have installed a new de-greasing plant for the British Motor Corporation's engine reconditioning factory in Coventry.

The prices have been cut for the winter in the contract hire service of J. Davy, Ltd., Kensington, London, S.W.3. For example, an Austin A.35 now costs £3 17s 6d per week on "permanent" hire.

European Cars, Ltd., 129, Old Brompton Road, South Kensington, London, S.W.7, have been appointed London and Middlesex distributors for A.C. cars. They will continue to distribute Volkswagen.

Correspondence for Smiths Jacking Systems, Ltd., should now be addressed care of Smiths Motor Accessories, Ltd., Witney Sub-Division, Witney, Oxfordshire. Mr. E. W. Healey, the sales manager, has left the company to become sales manager of the automobile department, Witney Sub-Division; his place is being taken by Mr. B. A. Sawyer.

In support of the national anti-litter campaign the National Benzole Co. have decided to provide specially designed litter bins for motorists at their garages and filling stations in the south-west. The first bins will be installed next month, and have a glass fibre lid pivoting on a central pin, swinging against a counterbalanced weight. It is hoped that the supply of bins will later be extended to other parts of the country.

Acheson Industries (Europe), Ltd., have moved their offices from 18, Pall Mall, to 1, Finsbury Square, London, E.C.2. The new telephone number is Monarch 5811.

Mr. Neville F. Sperryn has retired from secretaryship of the Champion Sparking Plug Co., Ltd., owing to ill health. He joined the company as assistant accountant in 1930.

Mr. E. J. Thomas has been appointed chairman and continues as chief executive of the Goodyear organization, whose headquarters are in Akron, U.S.A. He succeeds Mr. P. W. Litchfield, who becomes honorary chairman.

With regret the death is recorded of Mr. Gilbert Payne, sales manager of Warwick Wright, Ltd., of Cricklewood, London, one of the associated companies of the Rootes Group. He joined the group in 1934, and later served with distinction in the R.A.F. He was 50 when he died as the result of a recent boating accident.

Rootes, Ltd., Manchester, introduced the new Humber Super Snipe to the North a week after the London announcement, and Mr. Desmond Rootes attended. In addition to the new model, all the others in the Hillman, Humber and Sunbeam range were on view, as were Commer commercial vehicles, the Olympia showrooms in Chester Road becoming a miniature show for the evening.

At the end of the month Mr. C. K. Stringer, managing director of the Power Petroleum Company, is to retire. Mr. Stringer joined Shell-Mex, Ltd., in 1925, and became managing director of Power in October, 1954. He will be succeeded by Mr. G. B. Howard-Rice, who until recently has been establishment services manager of Shell-Mex and B.P., Ltd.

A show lasting for five weeks was opened earlier this month at Bentalls, Ltd., Wood Street, Kingston-upon-Thames. Among the exhibits are cutaway Jaguar and Austin engines, a Borg-Warner gear box, and the first Wolseley ever made